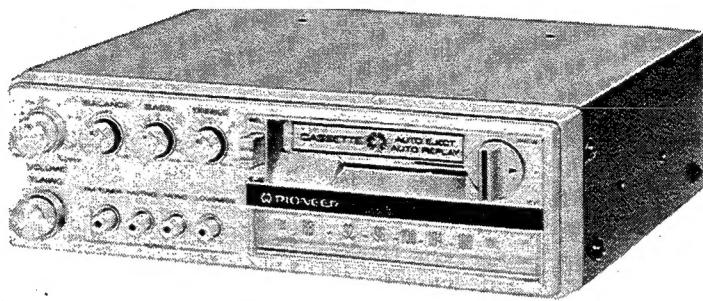


KPX-600

U.C

SUPER TUNER COMPONENT CAR STEREO
CASSETTE DECK WITH FM-STEREO

SERVICE MANUAL



Subject:
For Cassette Mechanism, refer to the Service Manual of
Model KPH-9000 or KP-66G.

SPECIFICATIONS

General

Power source	DC 13.8V (11~16V allowable)
Grounding system	Negative type
Dimensions (W × H × D)	200 × 60 × 178 mm (8-1/4 × 2-3/8 × 7 in.)
Weight	1.9 kg (4.2 lbs.)
Tone controls	Bass: ±10 dB (100 Hz) Treble: ±10 dB (10 kHz)
Loudness contour	+12 dB (100 Hz), (Volume: -30 dB) +4 dB (10 kHz)
Maximum output level	More than 180 mV
Output impedance	800Ω

Tape player

Tape	Compact cassette tape (C-30~C-90)
Tape speed	4.8 cm/sec. (1-7/8 ips)
Fast forward time	Within 120 sec. for C-60
Rewind time	Within 120 sec. for C-60
Wow & flutter	No more than 0.13% (WRMS)
Frequency response	30~15,000 Hz (-3 dB)
Cross talk	More than 46 dB
Signal-to-noise ratio	More than 52 dB

FM tuner

Frequency range	88~108 MHz
Usable sensitivity	12 dBf (1.1μV/75Ω)
50 dB quieting sensitivity	14.3 dBf (1.4μV/75Ω)
Signal-to-noise ratio	68 dB
Capture ratio	1.7 dB
Selectivity	74 dB (±400 kHz)
Image rejection	61 dB
IF rejection	80 dB
Distortion	0.8% (at 65 dBf, 400 Hz, mono) 0.95% (at 65 dBf, 1 kHz, stereo)
Frequency response	30~15,000 Hz (-3 dB)
Muting level	10.2 dBf (0.9μV/75Ω)
Stereo separation	32 dB (at 65 dBf, 1 kHz)

Note:

Specifications and the design subject to possible modification without
notice due to improvements.

PIONEER®

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1. PARTS LOCATION

KPX-600

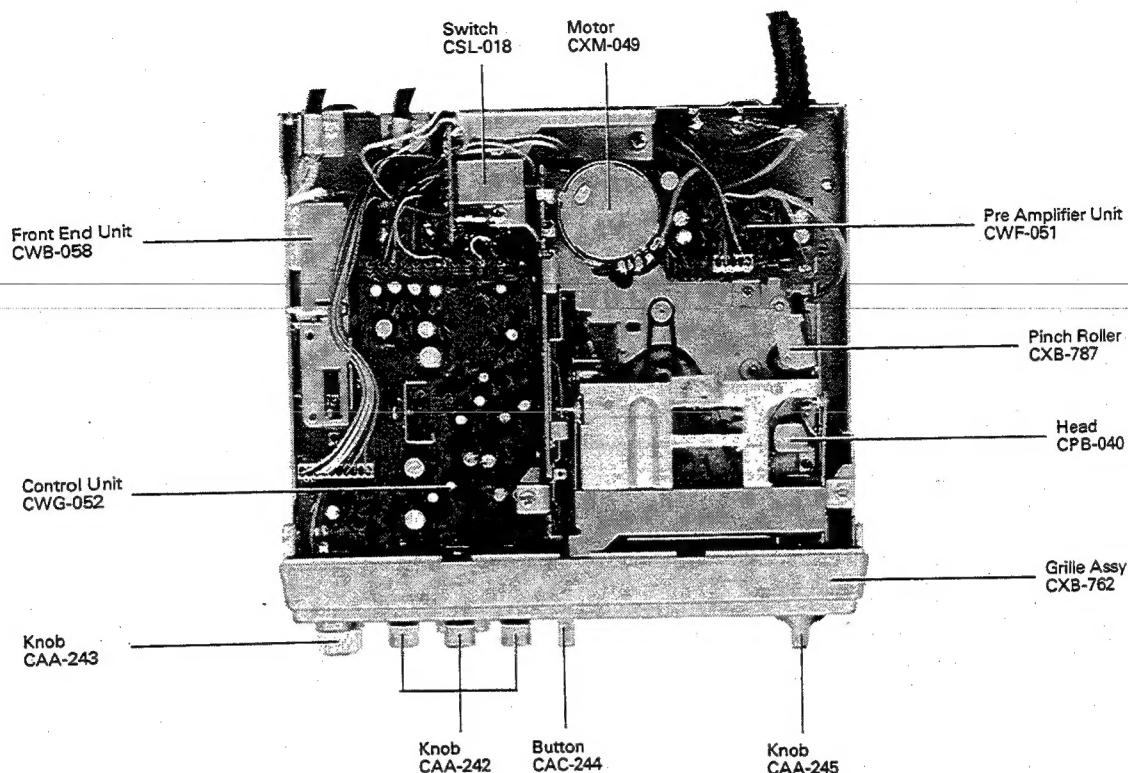


Fig.1

2. CIRCUIT DESCRIPTION

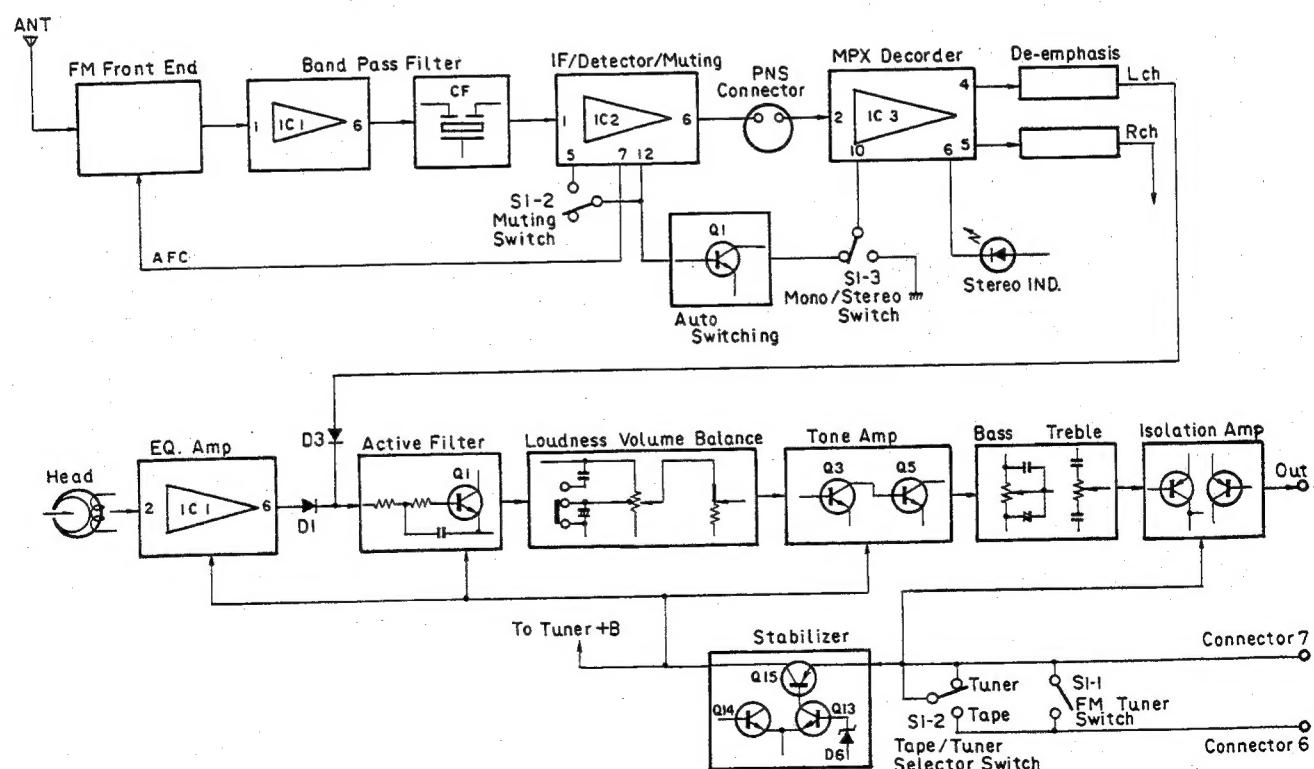


Fig. 2

3. ADJUSTMENT

3.1 FM IF ADJUSTMENT

- Connection Diagram

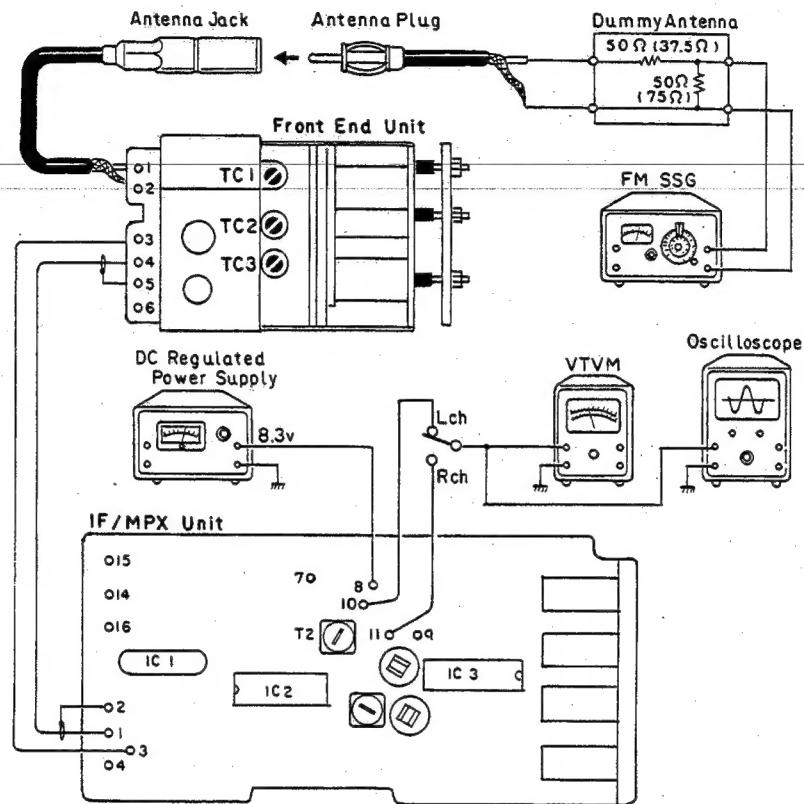


Fig. 3

- To Adjust

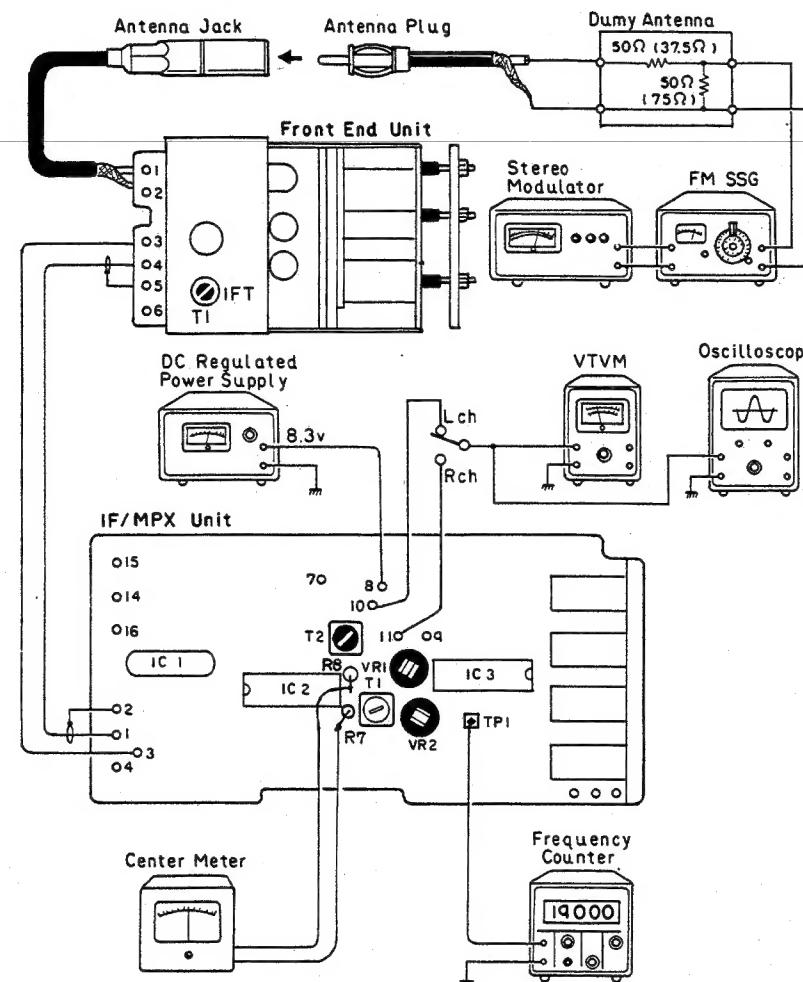
1. Add output signal of 0 dB from FM SSG and adjust T2 (yellow color) so that the pointer of center meter (use one graduated for over 200μA) will come to the center. When using a DC volt ammeter (use one graduated for over 200μA), set the pointer to 0.
2. Add output signal of 98MHz 60 dB from FM SSG and tune to 98 MHz on the dial (the pointer of the center meter is at the center).
3. Add output signal of 5 dB from FM SSG and adjust T1 (Front End) so that the output will become maximum.
4. Add output signal of 0 dB from FM SSG, adjust T2 (yellow color) so that the pointer of center meter is at the center.

Note:

When adjusting, do not move T1 of the IF/MPX unit.

3.2 FM TRACKING ADJUSTMENT

• Connection Diagram



3.3 FM MPX ADJUSTMENT

• Connection Diagram

Connect as shown in Fig. 3. Set the position of the switch as well.

• To Adjust

1. Add unmodulated signal of 60 dB from FM SSG and adjust VR2 so that the frequency counter will indicate 19 kHz \pm 20 Hz.
2. Set MONO switch to OFF (STEREO) position.
3. Set FM SSG to 98 MHz, output level to 60 dB (μ V) and modulation frequency to 1 kHz.
4. Set stereo modulator output to pilot modulation level of 7.5 kHz (deviation) and main modulation level (L + R) of 67.5 kHz (deviation).
5. Turn the tuning knob to 98 MHz.
6. Adjust the separation adjustment VR1 so that cross talk of the opposite channel is reduced to minimum (Rch/Lch).

4. DIAL STRINGING

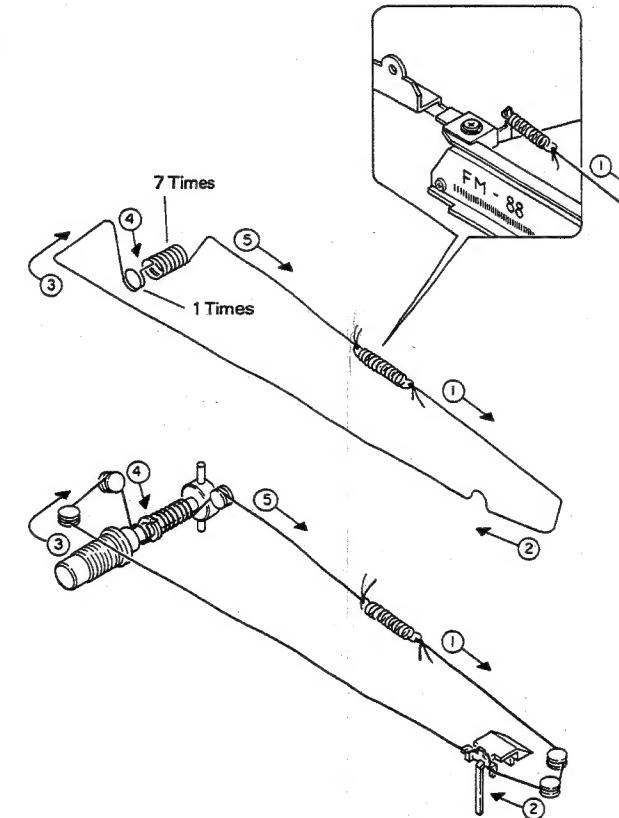
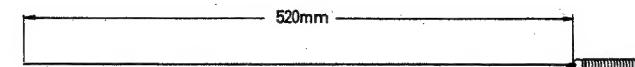


Fig. 4

• To Adjust

FM SSG frequency	Pointer Position	Adjustment Point	Note
1. 87 MHz (400 Hz, 100% modulation), output level 8 dB (μ V)	Minimum	TC3	87 MHz can be received
2. 109 MHz (400 Hz, 100% modulation), output level 8 dB (μ V)	Maximum	_____	Check if 109 MHz can be received
3. 98 MHz (400 Hz, 100% modulation), output level 5 dB (μ V)	Tune position	TC1, TC2	Maximum output

5. SCHEMATIC CIRCUIT DIAGRAM

KPX-600

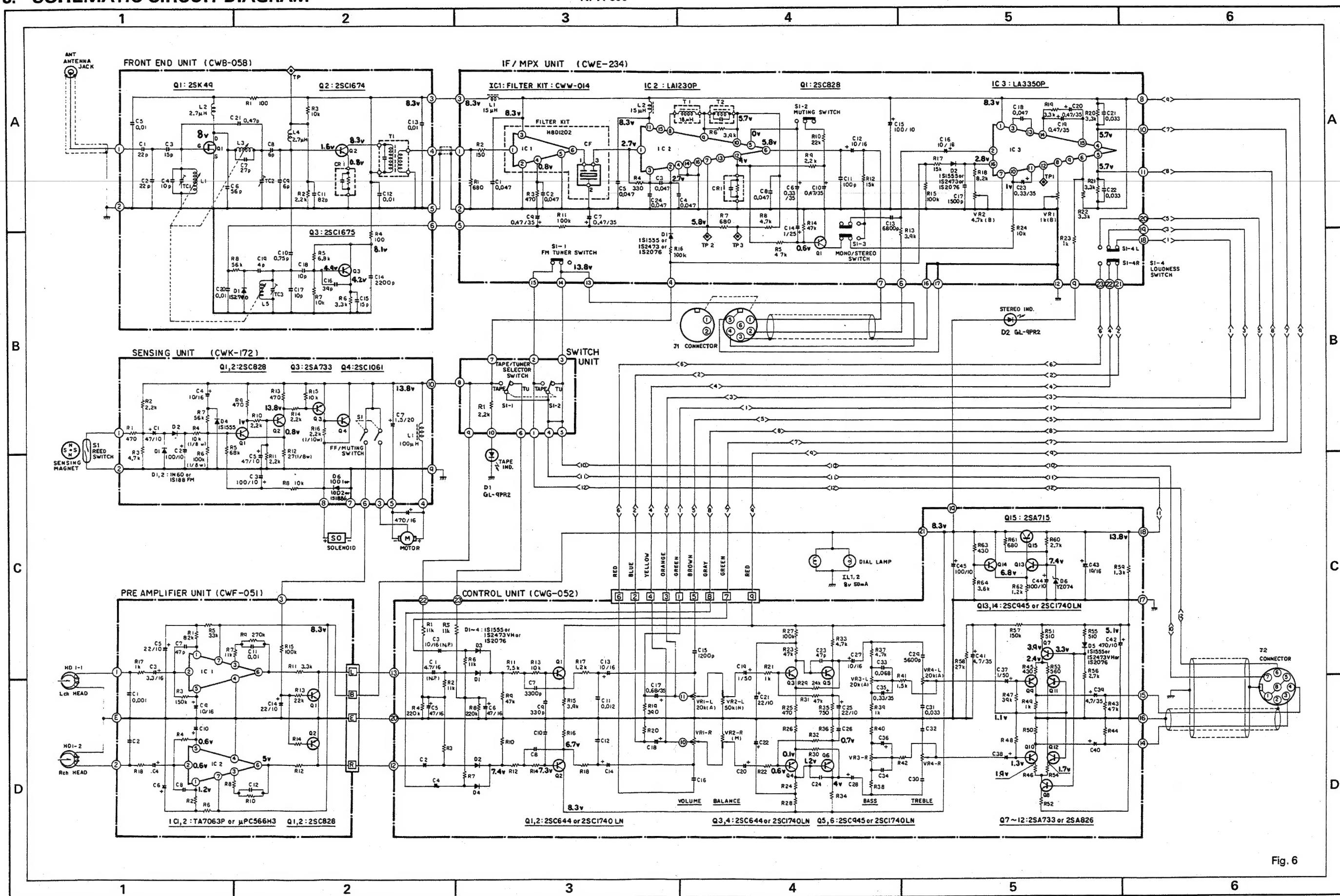


Fig. 6

SCHEMATIC CIRCUIT DIAGRAM

KPX-600

• IC's and Transistors

2SK49

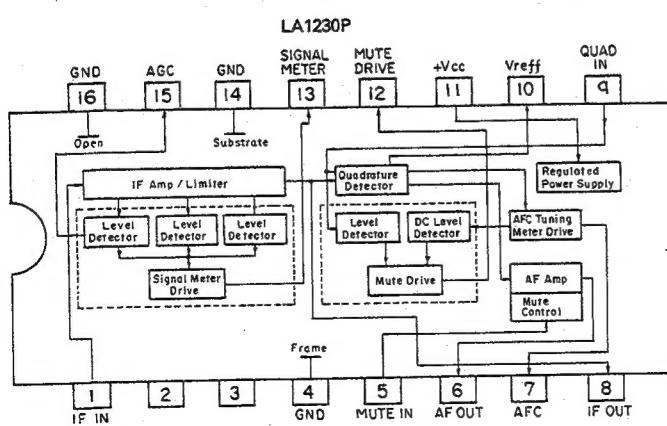
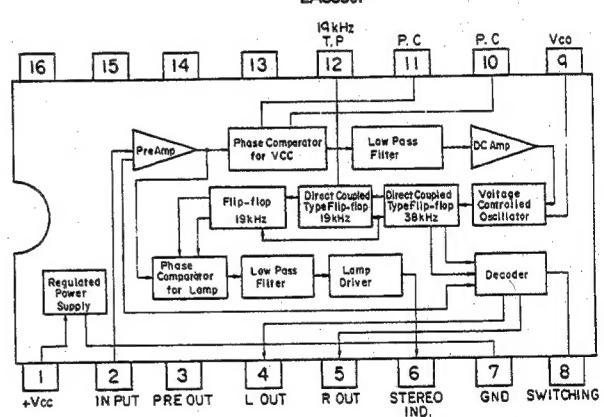
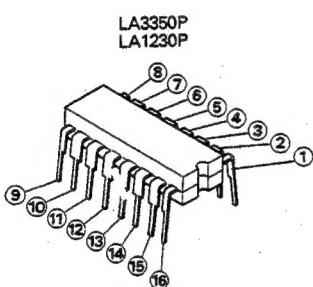
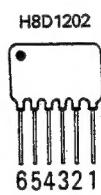
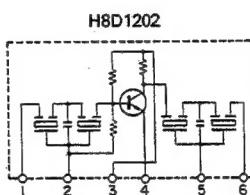
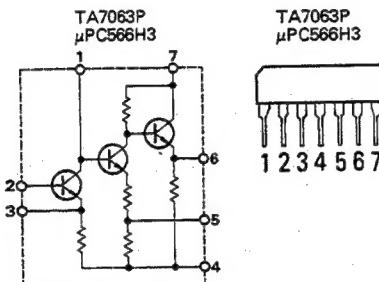
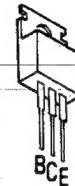


2SA826
2SA733
2SC644
2SC1740LN
2SC945
2SC828
2SC1675
2SC1674

2SC1061



2SA715



6. CONTROL UNIT (CWG-052)

• Parts Connection

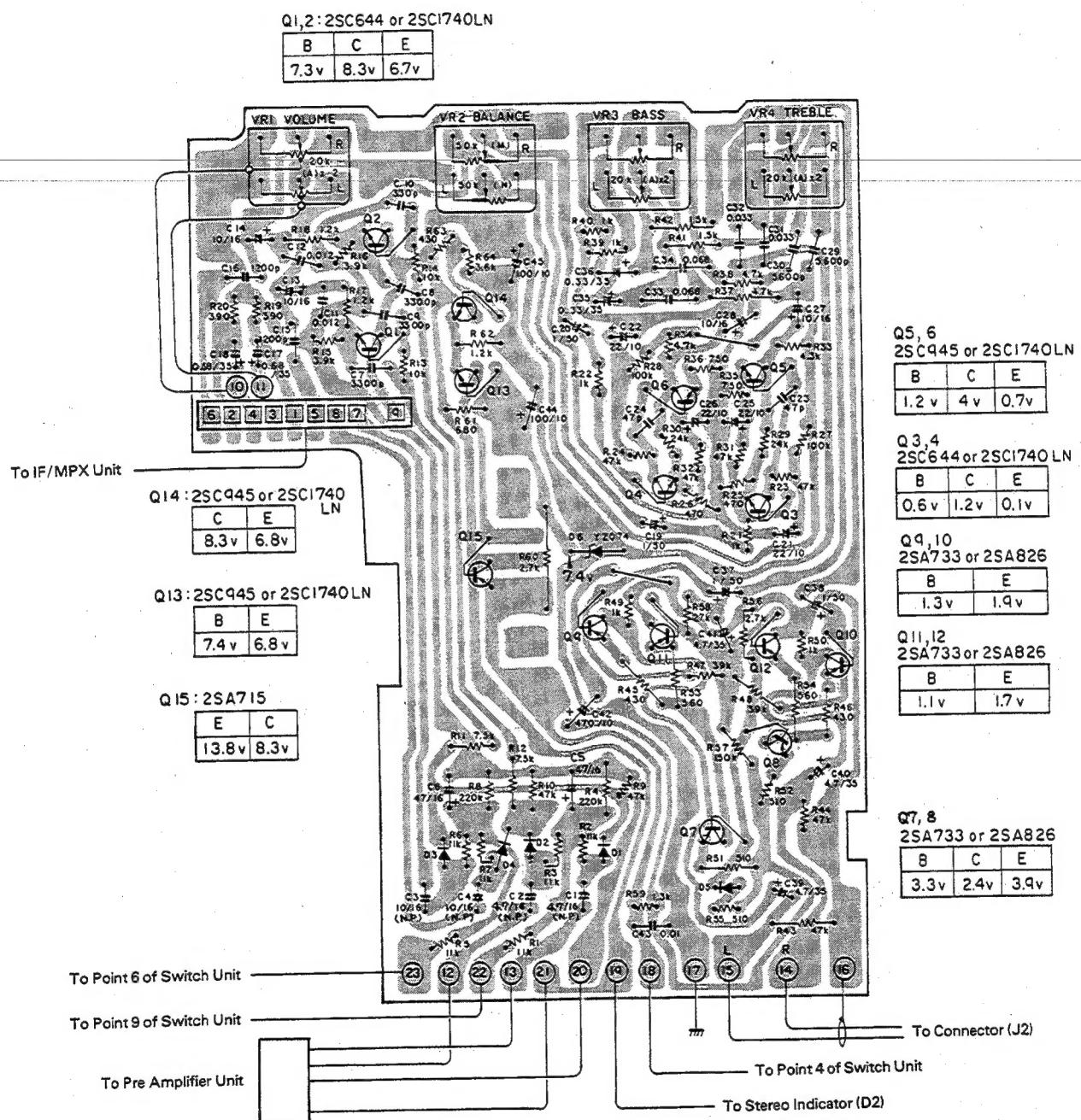


Fig. 7

• Parts List

NOTICE: Of the descriptive symbols of the resistor and capacitor, the encircled alphabetic letter denotes the allowable error.

Example: RD1/4VS100 ① C: $\pm 0.25\mu F$ F: $\pm 1\mu F$ J: $\pm 5\%$ M: $\pm 20\%$ Z: $\pm 80\%$
 CEA100 ② 25 D: $\pm 0.5\mu F$ G: $\pm 2\%$ K: $\pm 10\%$ X: $\pm 40\%$ P: $\pm 100\%$

MISCELLANEOUS

RESISTORS

CAPACITORS

Ref. Key	Parts No.	Description	Ref. Key	Parts No.	Description	Ref. Key	Parts No.	Description		
Q1~4	2SC644	Transistor	R1~3	RD1/4VS113J	11k Ω	1/4W	C1,2	CEA4R7M16NP	4.7 μF	16V
	2SC1740LN	Transistor	R4	RD1/4VS224J	220k Ω	1/4W	C3,4	CEA100M16NP	10 μF	16V
Q5,6	2SC945	Transistor	R5~7	RD1/4VS113J	11k Ω	1/4W	C5,6	CEA470P16	47 μF	16V
	2SC1740LN	Transistor	R8	RD1/4VS224J	220k Ω	1/4W	C7,8	CQMA332K50	3300pF	50V
Q7~12	2SA733	Transistor	R9,10	RD1/4VS473J	47k Ω	1/4W	C9,10	CKDVB331K50	330pF	50V
	2SA826	Transistor	R11,12	RD1/4VS752J	7.5k Ω	1/4W	C11,12	CQMA123K50	0.012 μF	50V
Q13,14	2SC945	Transistor	R13,14	RD1/4VS103J	10k Ω	1/4W	C13,14	CEA100P16	10 μF	16V
	2SC1740LN	Transistor	R15,16	RD1/4VS392J	3.9k Ω	1/4W	C15,16	CQMA122K50	1200pF	50V
Q15	2SA715	Transistor	R17,18	RD1/4VS122J	1.2k Ω	1/4W	C17,18	CSZAR68M35	0.68 μF	35V
D1~5	1S1555 or	Diode	R19,20	RD1/4VS391J	390 Ω	1/4W	C19,20	CEA010P50	1 μF	50V
	1S2076 or	Diode	R21,22	RD1/4VS102J	1k Ω	1/4W	C21,22	CEA220P10	22 μF	10V
	1S2473VH	Diode	R23,24	RD1/4VS473J	47k Ω	1/4W	C23,24	CCDSL470K50	47pF	50V
D6	YZ-074	Diode	R25,26	RD1/4VS471J	470 Ω	1/4W	C25,26	CEA220P10	22 μF	10V
VR1	CCS-183	Volume, 20k Ω (A)	R27,28	RD1/4VS104J	100k Ω	1/4W	C27,28	CEA100P16	10 μF	16V
VR2	CCS-173	Volume, 50k Ω (MN)	R29,30	RD1/4VS243J	24k Ω	1/4W	C29,30	CQMA582K50	5600pF	50V
VR3,4	CCS-172	Volume, 20k Ω (A)	R31,32	RD1/4VS473J	47k Ω	1/4W	C31,32	CQMA333K50	0.033 μF	50V
			R33,34	RD1/4VS432J	4.3k Ω	1/4W	C33,34	CQMA683K50	0.068 μF	50V
			R35,36	RD1/4VS751J	750 Ω	1/4W	C35,36	CSZAR33M35	0.33 μF	35V
			R37,38	RD1/4VS472J	4.7k Ω	1/4W	C37,38	CEA010P50	1 μF	50V
			R39,40	RD1/4VS102J	1k Ω	1/4W	C39~41	CEA4R7P35	4.7 μF	35V
			R41,42	RD1/4VS152J	1.5k Ω	1/4W	C42	CCH-002	470 μF	10V
			R43,44	RD1/4VS473J	47k Ω	1/4W	C43	CEA100P16	10 μF	16V
			R45,46	RD1/4VS431J	430 Ω	1/4W	C44,45	CEA101P10	100 μF	10V
			R47,48	RD1/4VS393J	39k Ω	1/4W				
			R49,50	RD1/4VS102J	1k Ω	1/4W				
			R51,52	RD1/4VS511J	510 Ω	1/4W				
			R53,54	RD1/4VS561J	560 Ω	1/4W				
			R55	RD1/4VS511J	510 Ω	1/4W				
			R56	RD1/4VS272J	2.7k Ω	1/4W				
			R57	RD1/4VS154J	150k Ω	1/4W				
			R58	RD1/4VS273J	27k Ω	1/4W				
			R59	RD1/4VS132J	1.3k Ω	1/4W				
			R60	RD1/4PS272J	2.7k Ω	1/4W				
			R61	RD1/4VS681J	680 Ω	1/4W				
			R62	RD1/4VS122J	1.2k Ω	1/4W				
			R63	RD1/4VS431J	430 Ω	1/4W				
			R64	RD1/4VS362J	3.6k Ω	1/4W				

7. IF/MPX UNIT (CWE-234)

• Parts Connection

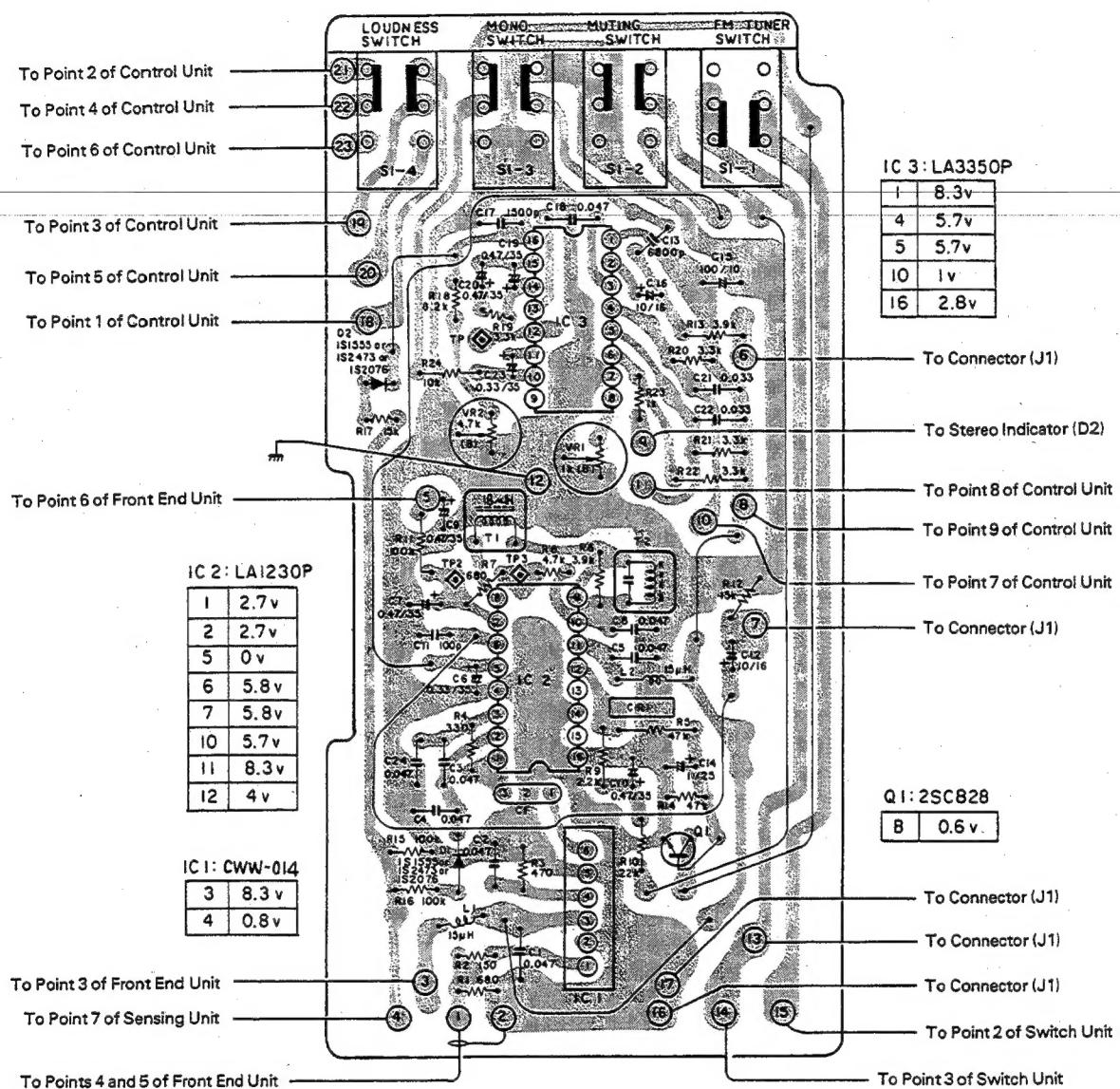


Fig. 8

IF/MPX UNIT (CWE-234) KPX-600

- Parts List

MISCELLANEOUS			RESISTORS			CAPACITORS				
Ref. Key	Parts No.	Description	Ref. Key	Parts No.	Description	Ref. Key	Parts No.	Description		
IC1	CWW-014	Filter Kit	R1	RD1/4VS681J	680Ω	1/4W	C1~5	CKDYF473Z25	0.047µF	25V
IC2	LA1230P	IC	R2	RD1/4VS151J	150Ω	1/4W	C6	CSZAR33M35	0.33µF	35V
IC3	LA3350P	IC	R3	RD1/4VS471J	470Ω	1/4W	C7	CSZAR47M35	0.47µF	35V
Q1	2SC828	Transistor	R4	RD1/4VS331J	330Ω	1/4W	C8	CKDYF473Z25	0.047µF	25V
D1,2	1S1555 or	Diode	R5	RD1/4VS473J	47kΩ	1/4W	C9,10	CSZAR47M35	0.47µF	35V
	1S2076 or	Diode	R6	RD1/4VS392J	3.9kΩ	1/4W	C11	CDKYB101K50	100pF	50V
	1S2473	Diode	R7	RD1/4PS681J	680Ω	1/4W	C12	CEA100P16	10µF	16V
L1,2	CTF-016 or		R8	RD1/4PS472J	4.7kΩ	1/4W	C13	CQMA682K50	6800pF	50V
	CTF-078	Ferri-Inductor, 15µH	R9	RD1/4VS222J	2.2kΩ	1/4W	C14	CSZA010M25	1µF	25V
T1	CTC-090	Ferri-Inductor, 15µH	R10	RD1/4VS223J	22kΩ	1/4W	C15	CEA101P10	100µF	10V
		Coil, 18µH	R11	RD1/4VS104J	100kΩ	1/4W	C16	CEA100P16	10µF	16V
T2	CTC-091	Coil	R12	RD1/4VS153J	15kΩ	1/4W	C17	CQSH152J50 or	1500pF	50V
VR1	C92-617	Volume, 1kΩ (B)	R13	RD1/4VS392J	3.9kΩ	1/4W		CQSA152J50	1500pF	50V
VR2	C92-618	Volume, 4.7kΩ (B)	R14	RD1/4VS473J	47kΩ	1/4W	C18	CQMA473K50	0.047µF	50V
S1	CSG-106	Switch	R15,16	RD1/4VS104J	100kΩ	1/4W	C19,20	CSZAR47M35	0.47µF	35V
CR1	CWW-033	Multiple Components	R17	RD1/4VS153J	15kΩ	1/4W	C21,22	CQMA333K50	0.033µF	50V
			R18	RD1/4VS822J	8.2kΩ	1/4W	C23	CSZAR33M35	0.33µF	35V
			R19~22	RD1/4VS332J	3.3kΩ	1/4W	C24	CKDYF473Z25	0.047µF	25V
			R23	RD1/4VS102J	1kΩ	1/4W				
			R24	RD1/4VS103J	10kΩ	1/4W				

8. SWITCH UNIT

- **Parts Connection**

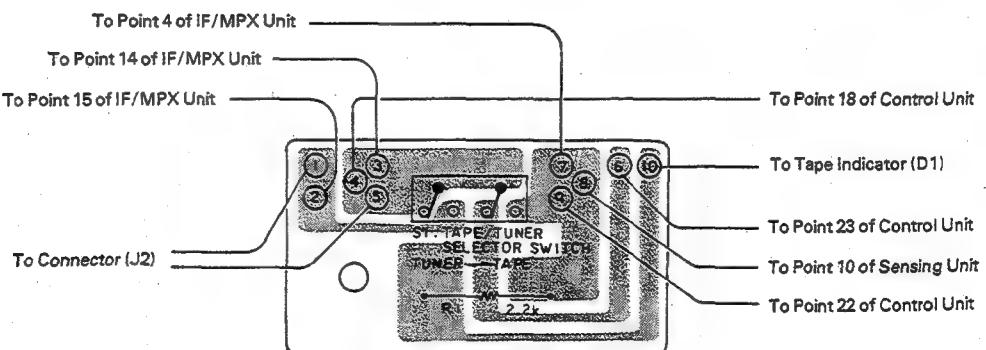


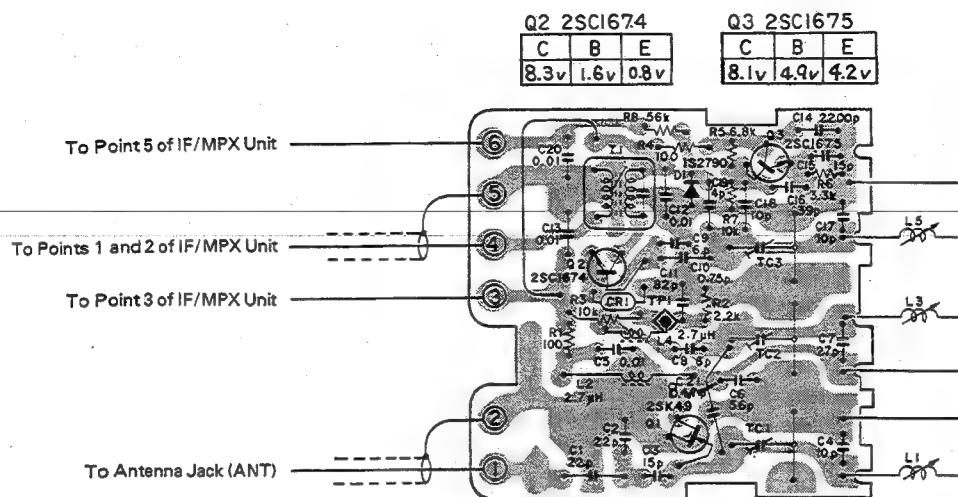
Fig. 9

- **Parts List**

Ref. Key	Parts No.	Description
R1	RD1/4PS222J	Resistor 2.2k Ω 1/4W
S1	CSL-018	Switch

9. FRONT END UNIT (CWB-058)

• Parts Connection



10. SENSING UNIT (CWK-172)

KPX-600

• Parts Connection

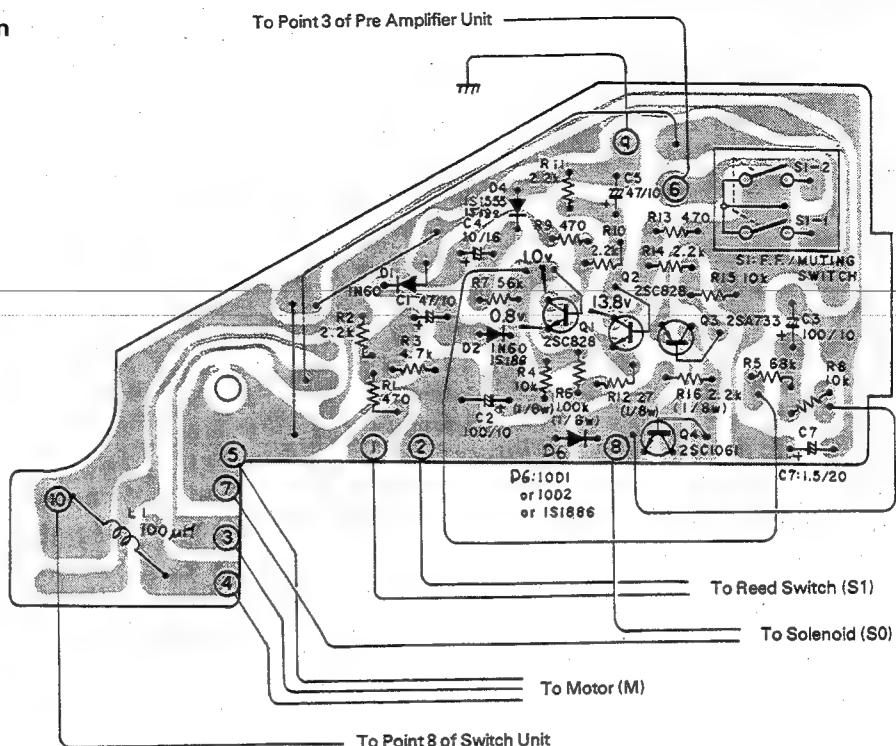


Fig. 11

• Parts List

MISCELLANEOUS

Ref. Key	Parts No.	Description
Q1,2	2SC828	Transistor
Q3	2SA733	Transistor
Q4	2SC1061	Transistor
D1,2	IN-60	Diode
	1S188FM-1	Diode
D3	VACANT	
D4	1S1555	Diode
D5	VACANT	
D6	10D1 or 10D2 or	Diode
		Diode
	1S1886	Diode
L1	CTH-054	Coil, 100 μ H
S1	CSN-047	Switch

RESISTORS

Ref. Key	Parts No.	Description
R1	RD1/4VS471J	470 Ω 1/4W
R2	RD1/4VS222J	2.2k Ω 1/4W
R3	RD1/4VS472J	4.7k Ω 1/4W
R4	CCN-023	10k Ω 1/8W
R5	RD1/4VS683J	68k Ω 1/4W
R6	RD1/8PS104J	100k Ω 1/8W
R7	RD1/4VS563J	56k Ω 1/4W
R8	RD1/4VS103J	10k Ω 1/4W
R9	RD1/4VS471J	470 Ω 1/4W
R10,11	RD1/4VS222J	2.2k Ω 1/4W
R12	CCN-022	27 Ω 1/8W
R13	RD1/4VS471J	470 Ω 1/4W
R14	RD1/4VS222J	2.2k Ω 1/4W
R15	RD1/4VS103J	10k Ω 1/4W
R16	CCN-021	2.2k Ω 1/8W

CAPACITORS

Ref. Key	Parts No.	Description
C1	CEA470P10	47 μ F 10V
C2,3	CEA101P10	100 μ F 10V
C4	CEA100P16	10 μ F 16V
C5	CEA470P10	47 μ F 10V
C6	VACANT	
C7	C40-623-K or C40-723-K or C40-823-K	1.5 μ F 20V

11. PRE AMPLIFIER UNIT (CWF-051)

• Parts Connection

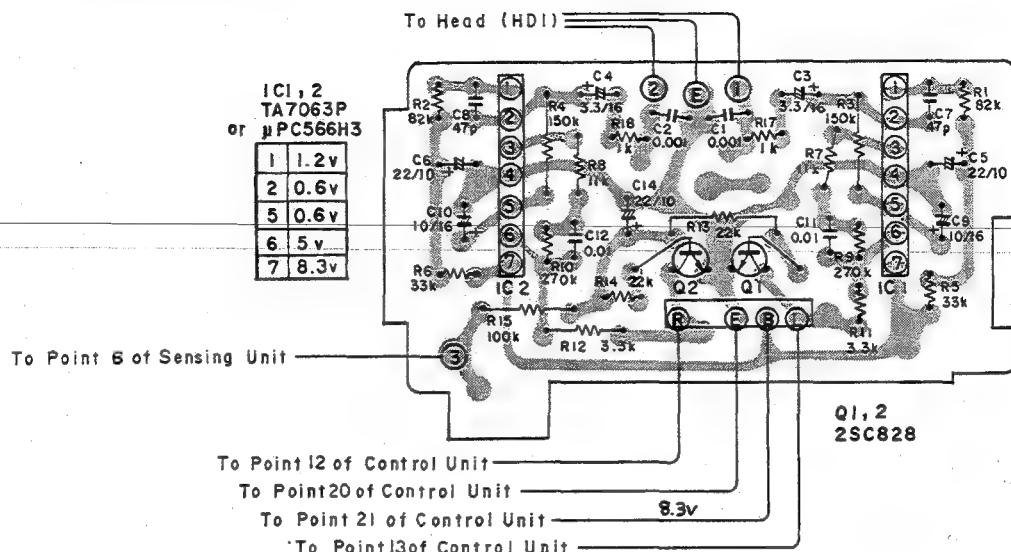


Fig. 12

• Parts List

MISCELLANEOUS

Ref. Key	Parts No.	Description
IC1,2	TA7063P or μPC566H3	IC
Q1,2	2SC828	Transistor

RESISTORS

Ref. Key	Parts No.	Description
R1,2	RD1/4VS823J	82kΩ 1/4W
R3,4	RD1/4VS154J	150kΩ 1/4W
R5,6	RD1/4VS333J	33kΩ 1/4W
R7,8	RD1/4VS113J	11kΩ 1/4W
R9,10	RD1/4VS274J	270kΩ 1/4W
R11,12	RD1/4VS332J	3.3kΩ 1/4W
R13,14	RD1/4VS223J	22kΩ 1/4W
R15	RD1/4VS104J	100kΩ 1/4W
R16	VACANT	
R17,18	RD1/4VS102J	1kΩ 1/4W

CAPACITORS

Ref. Key	Parts No.	Description
C1,2	CQMA102K50	0.001μF 50V
C3,4	CSZA3R3M16	3.3μF 16V
C5,6	CEA220P10	22μF 10V
C7,8	CCDSL470K50	47pF 50V
C9,10	CEA100P16	10μF 16V
C11,12	CQMA103K50	0.01μF 50V
C13	VACANT	
C14	CSZA220M10	22μF 10V

12. MISCELLANEOUS PARTS LIST

Ref. Key	Parts No.	Description
D1,2	GL-9PR2	LED
C1	CEB471P16	470μF 16V
S1	CSN-055	Switch
HD1	CPB-040	Head
SO	CXP-021	Solenoid
M	CXM-049	Motor
IL1,2	CEL-088	Lamp 8V 50mA
J1	CED-503	Connector
J2	CDE-492	Connector
ANT	CDH-026	Antenna Connector

NOTICE: Parts whose parts numbers are omitted are subject to being not supplied.

13. PACKING METHOD KPX-600

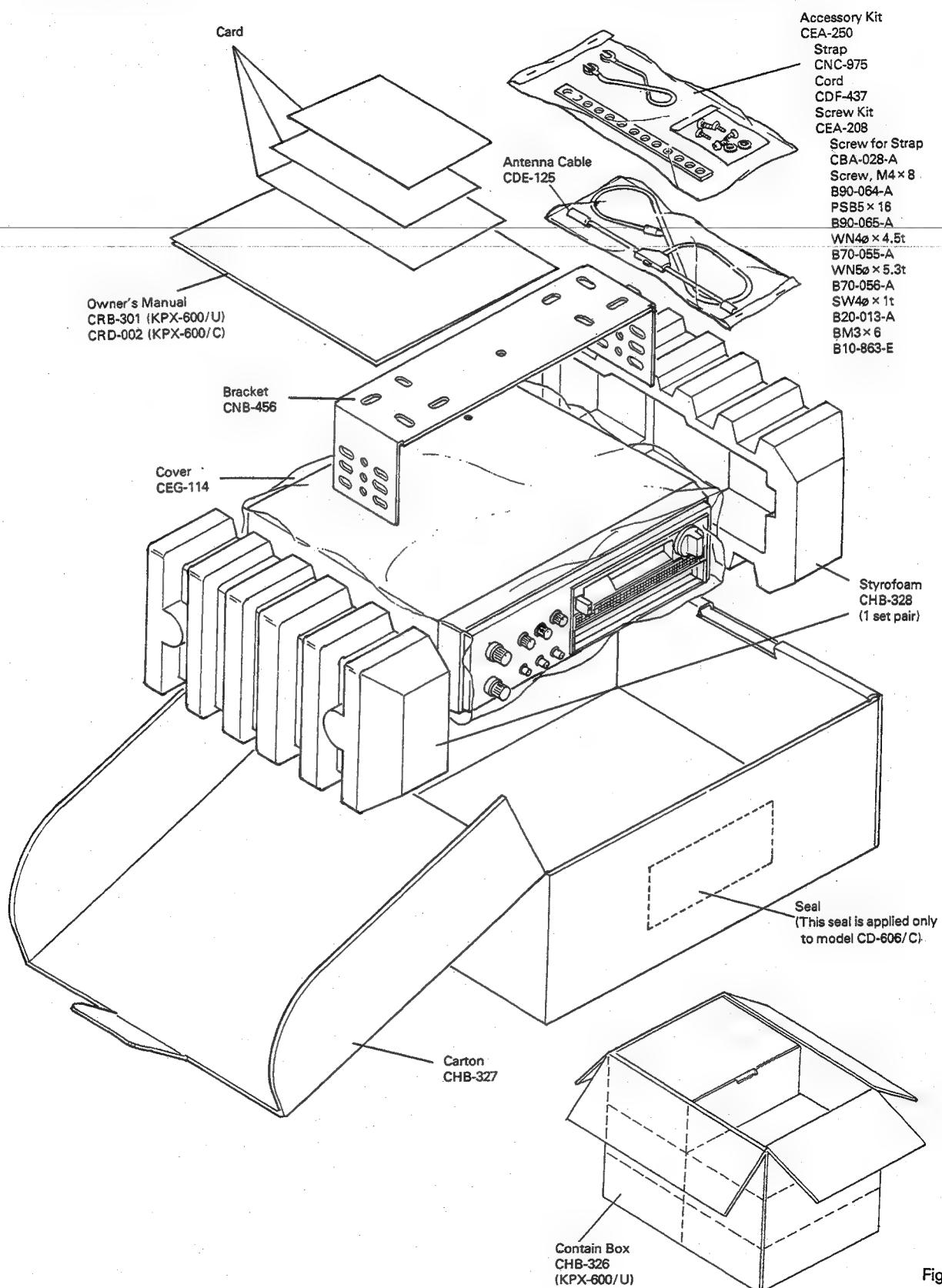
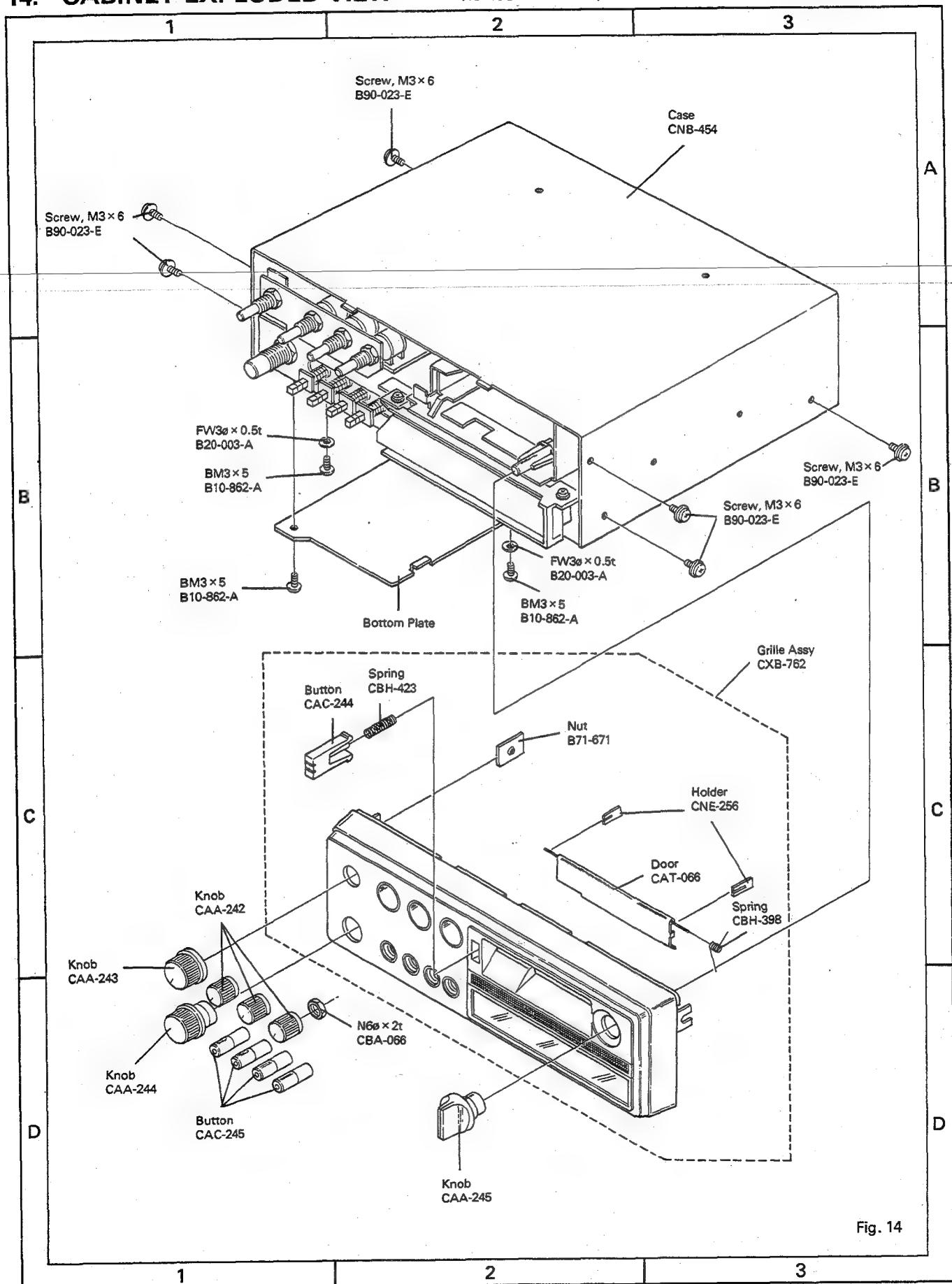


Fig. 13

14. CABINET EXPLODED VIEW

NOTICE: Part whose parts number is omitted is subject to being not supplied.



15. CHASSIS EXPLODED VIEW

NOTICE: Parts whose parts numbers are omitted are subject to being not supplied.

KPX-600

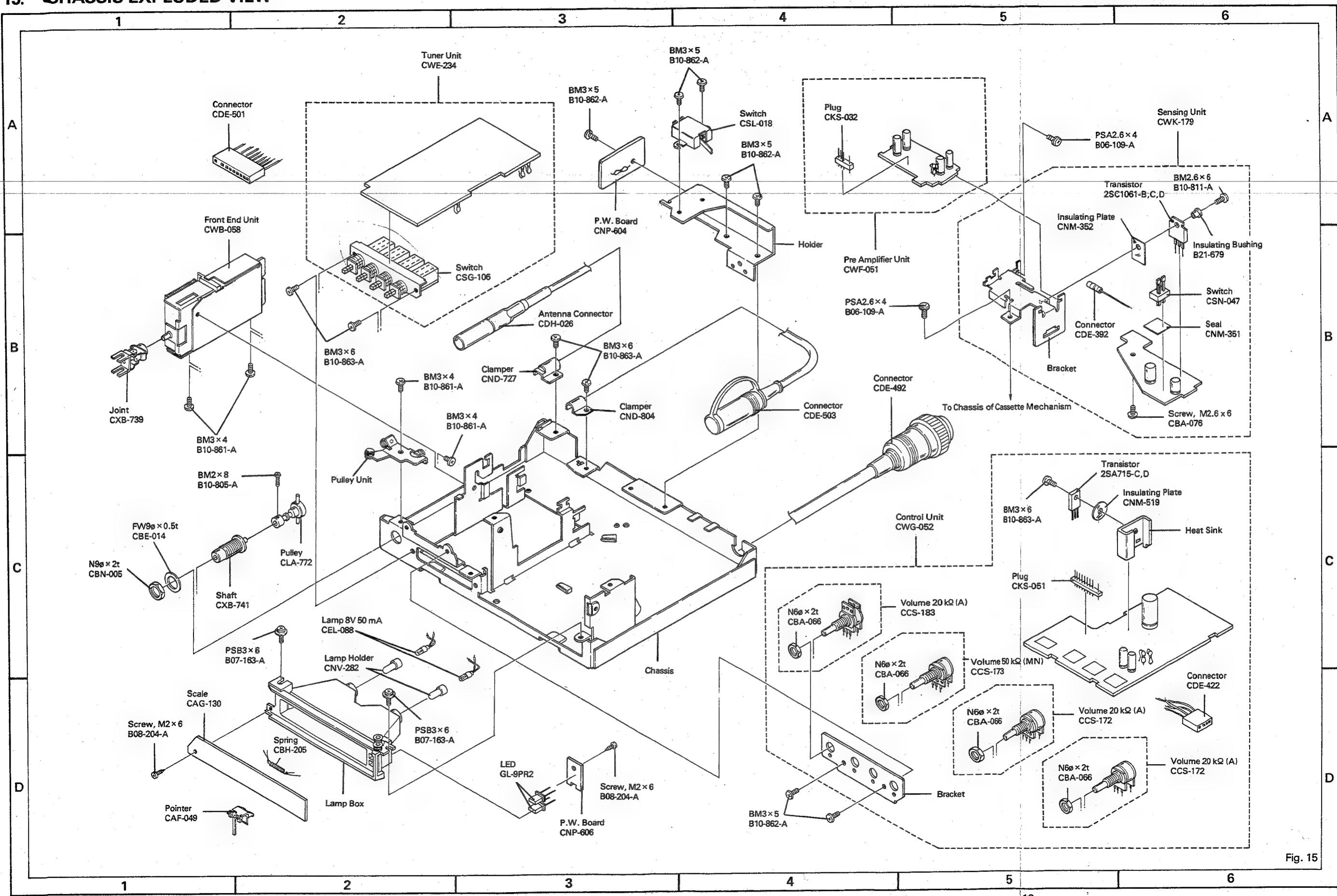


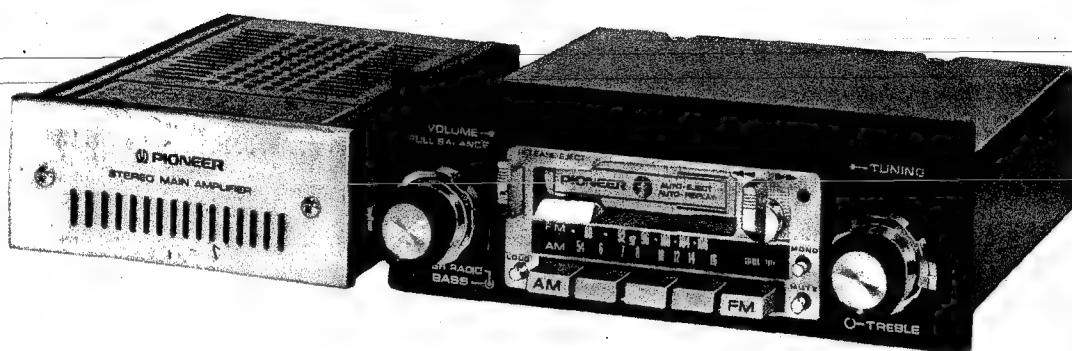
Fig. 15

KPH-9000

SUPER TUNER

COMPONENT CASSETTE CAR STEREO WITH AM/FM-STEREO

SERVICE MANUAL



Subject:

This Service Manual is prepared exclusively for Main Unit.
For Stereo Main Amplifier, see Service Manual GM-40.

SPECIFICATIONS

General

Power source	DC13.8V (11~16V allowable)
Grounding system	Negative type
Max. current consumption	4A
Dimensions (W × H × D)	Main unit: 180 × 50 × 150mm (7-1/8 × 2 × 5-7/8 in.) Main amplifier: 122 × 50 × 150mm (4-3/4 × 2 × 5-7/8 in.)
Nose size (W × H × D)	104 × 44 × 30mm (4-1/8 × 1-3/4 × 1-1/8 in.)
Shaft interval	147 or 160mm (5-3/4 or 6-1/4 in.)
Weight	Main unit: 2.2 kg (4.8 lbs.) Main amplifier: 1 kg (2.2 lbs.)
Tone controls	Bass: ±10 dB (100 Hz) Treble: ±10 dB (10 kHz)
Loudness contour	+12 dB (100 Hz), (Volume: -30 dB) +4 dB (10 kHz)
Maximum output level	More than 180 mV
Output impedance	800 Ω

Tape player

Tape	Compact cassette tape (C-30 ~ C-90)
Tape speed	4.8 cm/sec. (1-7/8 ips)
Fast forward time	Within 120 sec. for C-60
Rewind time	Within 120 sec. for C-60
Wow & flutter	No more than 0.13% (WRMS)
Frequency response	30 ~ 15,000 Hz (-3 dB)
Crosstalk	More than 46 dB
Signal-to-noise ratio	More than 52 dB

FM tuner

Frequency range	88 ~ 108 MHz
Usable sensitivity	12 dBf (1.1 μV/75 Ω)
50 dB quieting sensitivity	14.3 dBf (1.4 μV/75 Ω)
Signal-to-noise ratio	68 dB
Capture ratio	1.7 dB
Selectivity	74 dB (±400 kHz)
Image rejection	61 dB
IF rejection	80 dB
Distortion	0.8% (at 65 dBf, 400 Hz, mono) 0.95% (at 65 dBf, 1 kHz, stereo)
Frequency response	30 ~ 15,000 Hz (-3 dB)
Muting level	10.2 dBf (0.9 μV/75 Ω)
Stereo separation	32 dB (at 65 dBf, 1 kHz)

AM tuner

Frequency range	525 ~ 1,605 kHz
Sensitivity	18 μV
Selectivity	38 dB (±10 kHz)
Max. input signal (distortion 5%)	130 dB

Stereo main amplifier (GM-40)

Power output (max.)	20W + 20W
(rated)	16W + 16W
Load impedance	4 Ω (4 ~ 8 Ω allowable)
Frequency response	15 ~ 40,000 Hz (-3 dB)
Signal-to-noise ratio	More than 80 dB
Distortion	No more than 0.06% (at 1.5W, 1 kHz)
Input level	70 mV/20 kΩ

Note: Specifications and the design subject to possible modification without notice due to improvements.

PIONEER

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1. PARTS LOCATION

KPH-9000

- Top View

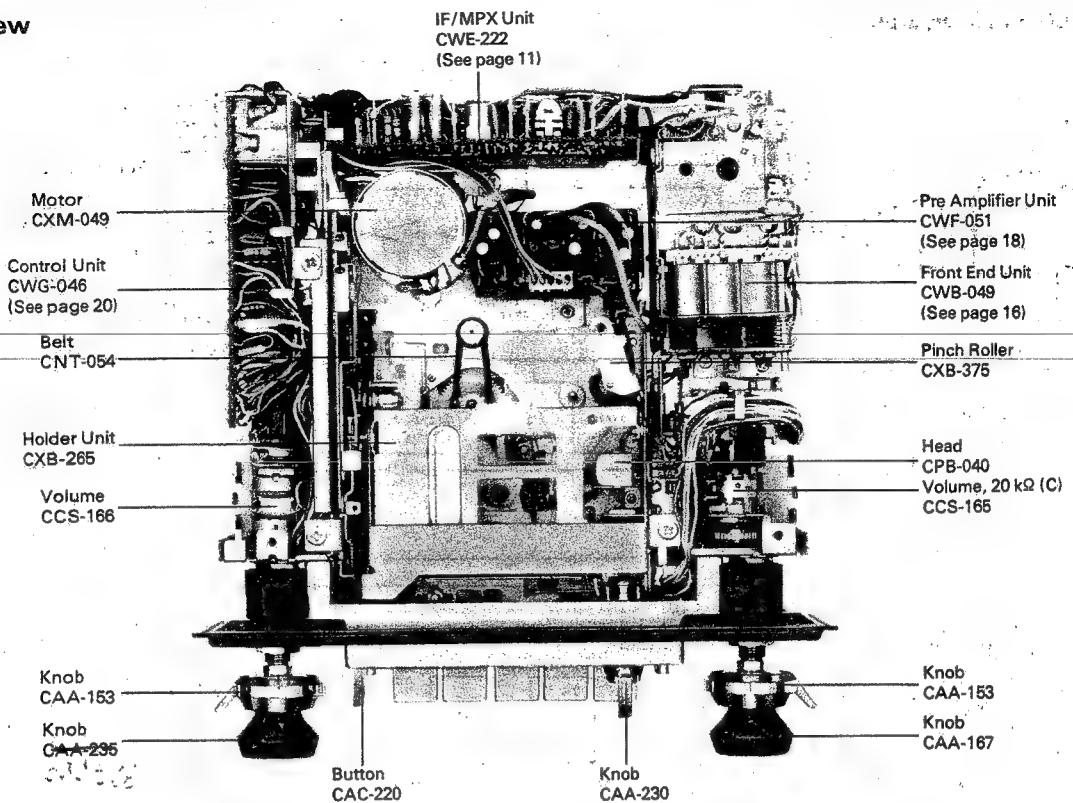


Fig. 1

- Bottom View

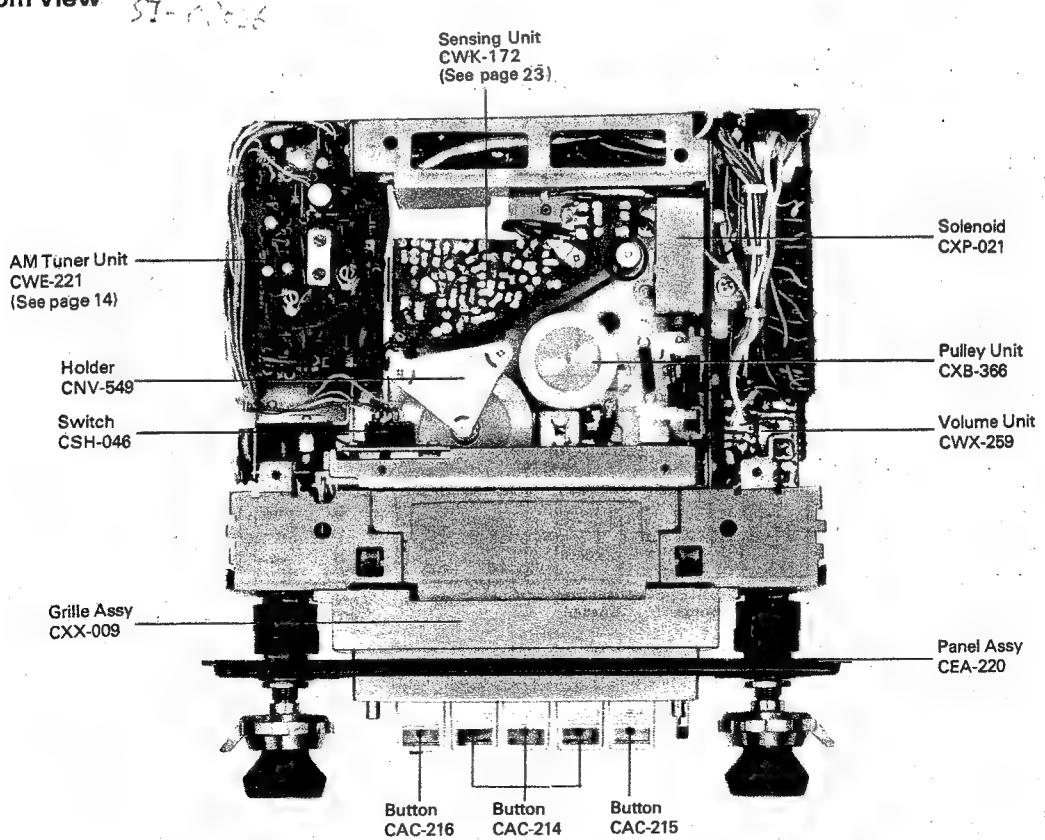


Fig. 2

2. CIRCUIT DESCRIPTION

• Circuit Block Diagram

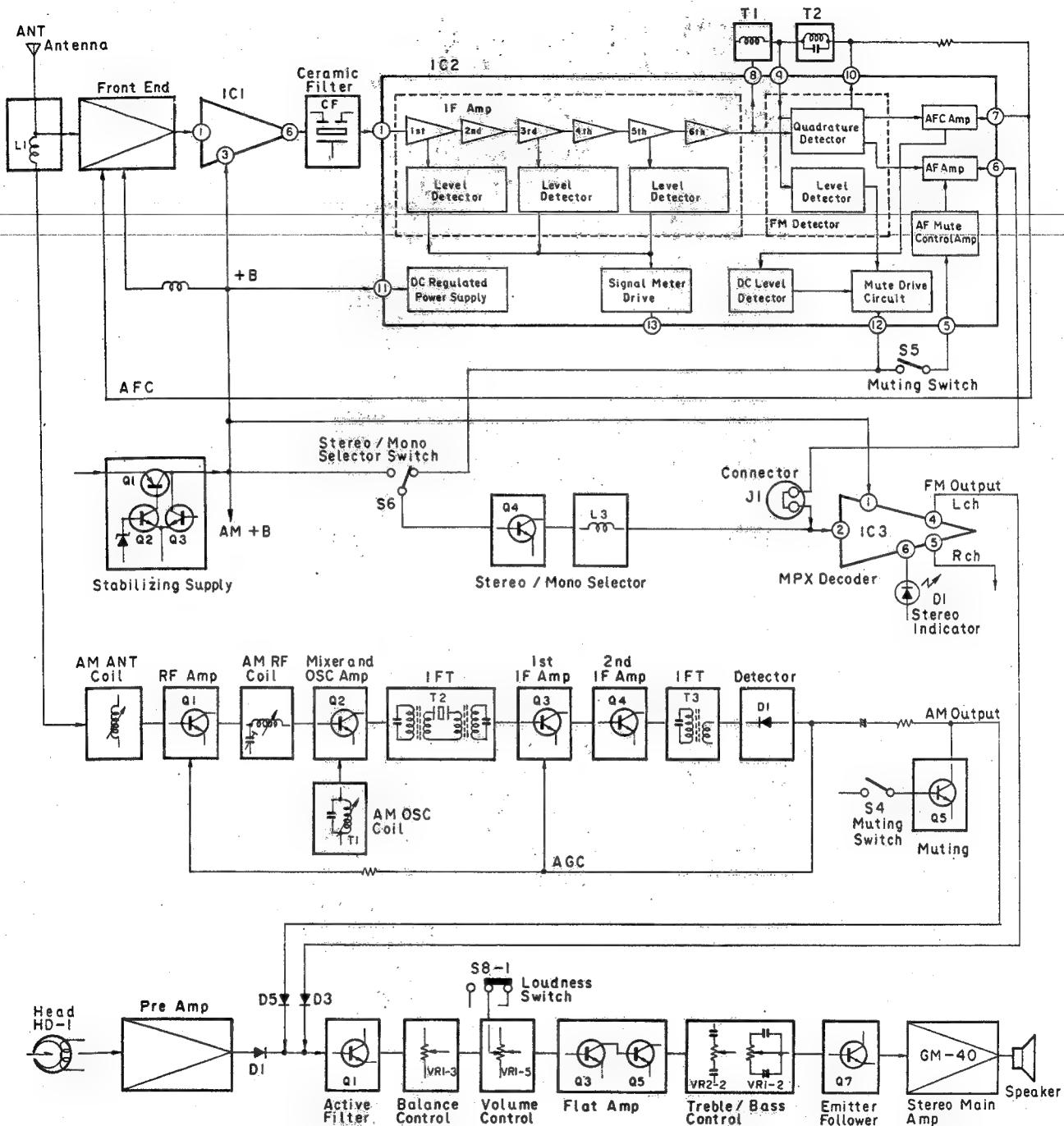


Fig. 3

CIRCUIT DESCRIPTION

KPH-9000

• Level Diagram

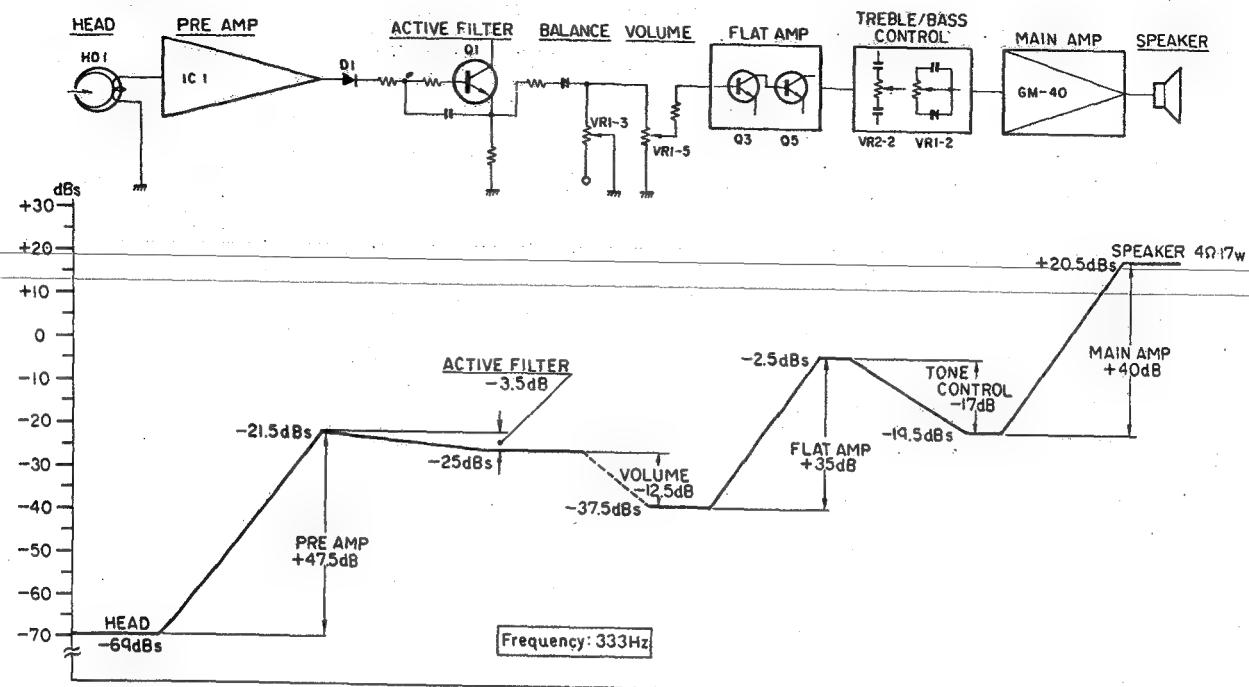


Fig. 4

3. DISASSEMBLY

• To Remove Case

1. Remove 4 mount screws (3 x 4mm) from upper case (see Fig. 5).
2. Remove 4 mount screws (3 x 4mm) from lower case (see Fig. 6).
3. Remove screw (3 x 5mm) from clamer (see Fig. 6).

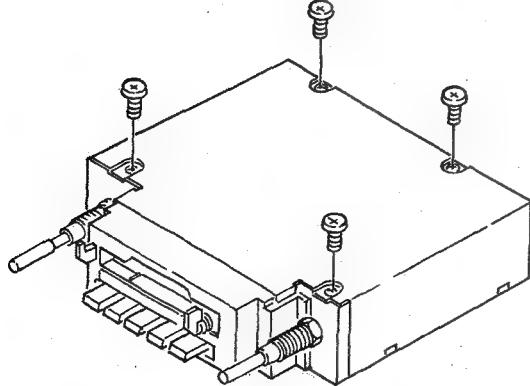


Fig. 5

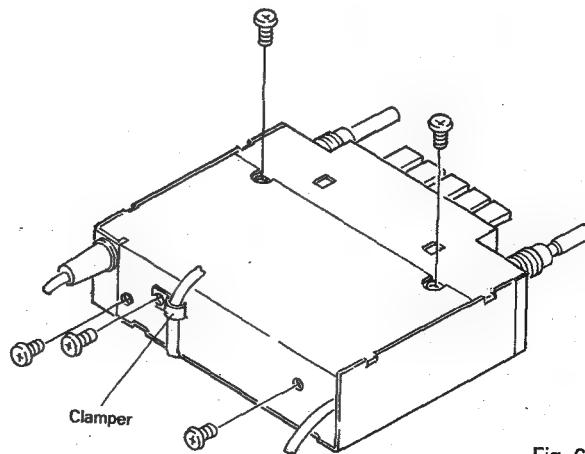


Fig. 6

DISASSEMBLY

• To Remove Front Grille

1. Remove 2 mount screws (2.6 x 6mm) from front grille.
2. Withdraw knob to take out front grille (see Fig. 7).

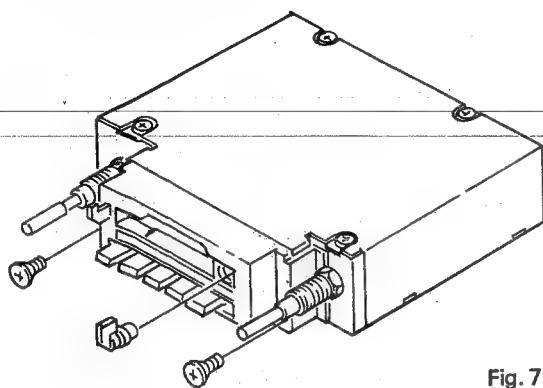


Fig. 7

• To Remove Cassette Mechanism

1. Remove upper case, lower case and front grille (see preceding items).
2. Remove connector from orange lead of sensing unit.
3. Remove connector from pre amplifier unit.
4. Remove 3 mount screws (3 x 5mm) from the cassette mechanism unit and take it out (see Fig. 8).

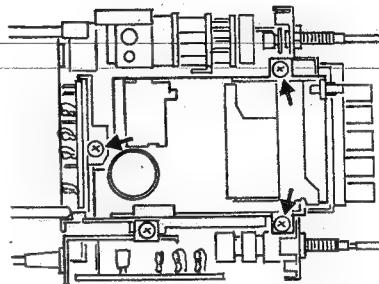


Fig. 8

4. ADJUSTMENT

4.1 AM IF ADJUSTMENT

• Connection Diagram

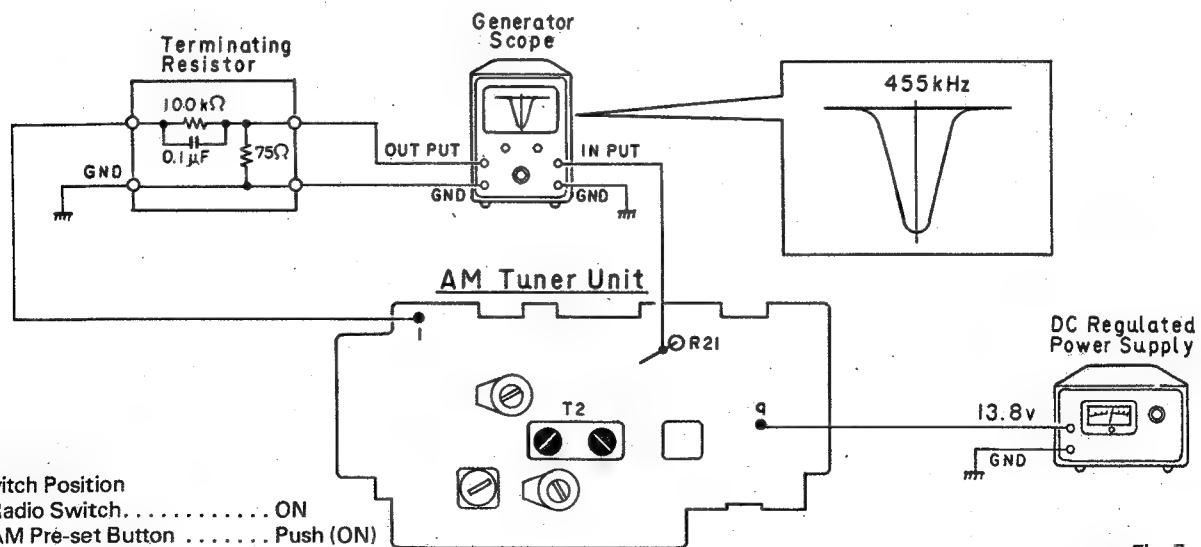


Fig. 9

• To Adjust

1. Set Generator Scope as Follows:

Frequency centering on sweep..... 455kHz
 Input level 0.3Vp-p/cm
 Output level..... 3mV~10mV

2. Turn the cores (red and blue) of T2 and adjust so that U-curve will be at maximum amplitude and best symmetry.

4.2 AM TRACKING ADJUSTMENT

• Connection Diagram

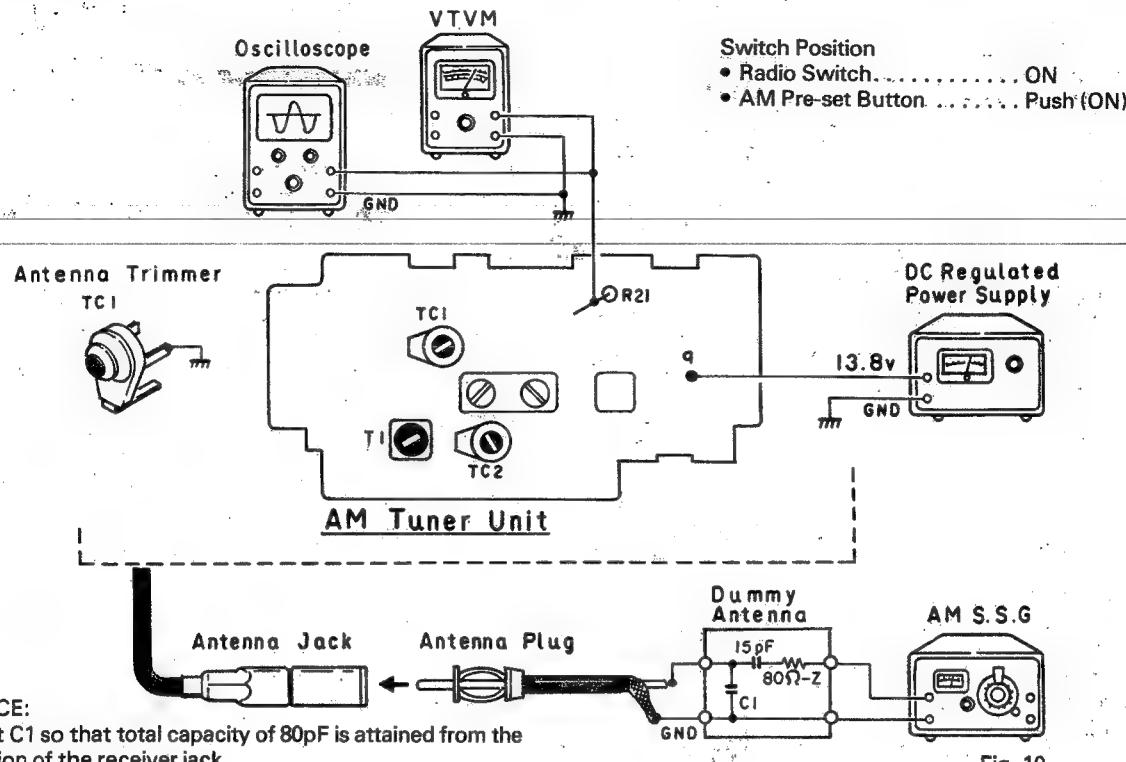


Fig. 10

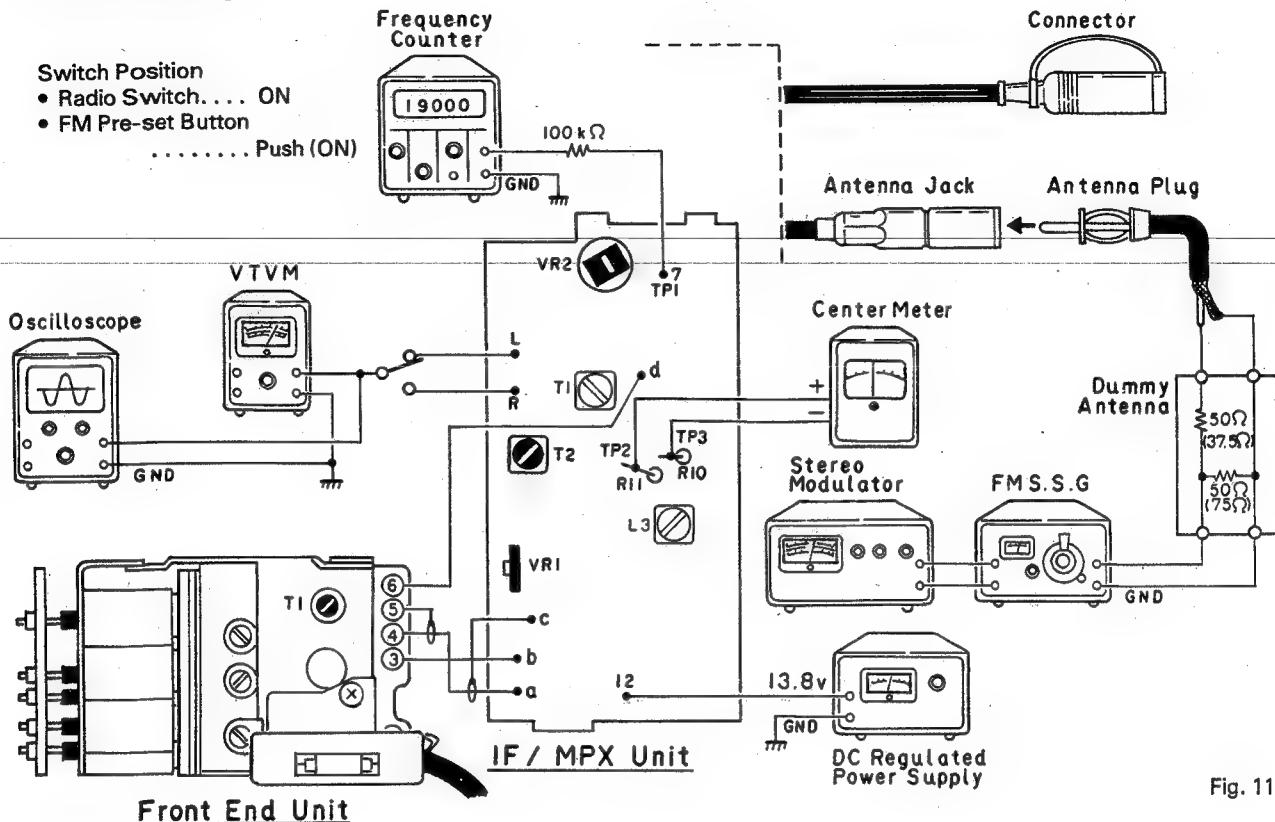
• To Adjust

SSG Frequency	Pointer Position	Adjustment Point	Note
1. 515kHz (400Hz, 30% modulation), output level 20dB (μ V)	Minimum	T1	515kHz can be received
2. 1,650kHz (400Hz, 30% modulation), output level 20dB (μ V)	Maximum	TC2	1,650kHz can be received
3. Repeat (1) and (2) alternately and adjust so that broadcast can be received at the frequency between 515kHz and 1,650kHz.			
4. 1,000kHz (400Hz, 30% modulation), output level 20dB (μ V)	Tune to 1,000kHz	TC1, Antenna trimmer (TC1)	VTVM at maximum

ADJUSTMENT

4.3 FM IF ADJUSTMENT

• Connection Diagram



• To Adjust

1. Add output signal of zero from SSG and adjust T2 (yellow color) so that the pointer of center meter (use one graduated for over $200\mu\text{A}$) will come to the center. When using an DC volt ammeter (use one graduated for over $200\mu\text{A}$), set the pointer to 0.
2. Add output signal of 98 MHz 60 dB from SSG, multi-signal of modulated frequency 1,000 Hz of stereo modulator and tune to 98 MHz on the dial (the pointer of the center meter is at the center).

3. Adjust T1 (front end unit) so that separated signal will be minimal in its distortion factor.
4. Check if the distortion factor is minimal, and when the adjustment is found imperfect, adjust T2 (yellow color).

NOTE:

When adjusting, do not move T1 and L3.

4.4 FM TRACKING ADJUSTMENT

- Connection Diagram

Switch Position

- Radio Switch ON
- FM Pre-set Button Push (ON)

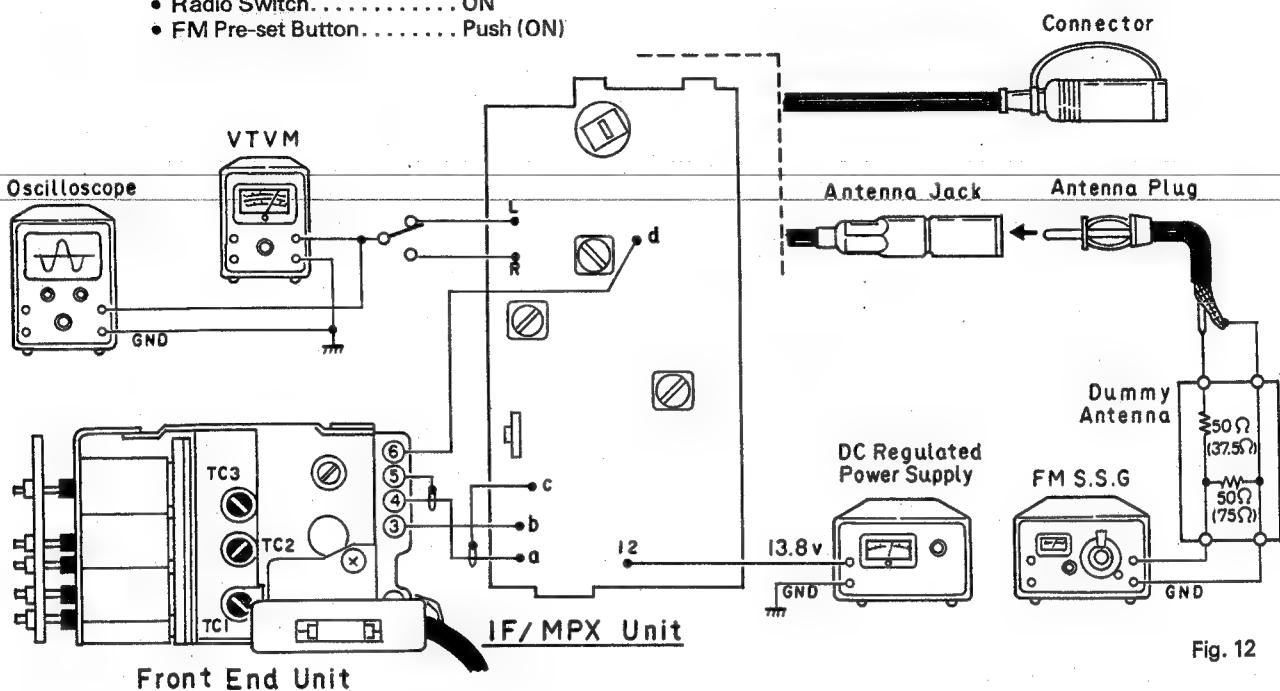


Fig. 12

- To Adjust

SSG Frequency	Pointer Position	Adjustment Point	Note
1. 87.5 MHz (400Hz, 100% modulation), output level 8dB (μ V)	Minimum	TC3	87.5MHz can be received
2. 108.5MHz (400Hz, 100% modulation), output level 8dB (μ V)	Maximum		Check if 108.5 MHz can be received
3. 98 MHz (400Hz, 100% modulation), output level 5dB (μ V)	Tuned position	TC1, TC2	Maximum output

4.5 FM MPX ADJUSTMENT

- Connection Diagram

Connect as shown in Fig. 11. Set the position of the switch as well.

- To Adjust

1. Add unmodulated signal of 60 dB from SSG and adjust VR2 so that the frequency counter will indicate 19 kHz \pm 20Hz.

2. Set MONO switch to OFF (STEREO) position.
3. Set SSG to 98MHz, output level to 60dB (μ V) and modulation frequency to 1kHz.
4. Set stereo modulator output to pilot modulation level of 7.5kHz (deviation) and main modulation level (L + R) of 67.5kHz (deviation).
5. Turn the tuning knob to 98MHz.
6. Adjust the separation adjustment VR1 so that crosstalk of the opposite channel is reduced to minimum (Rch/Lch).

• IC's and Transistors

2SC945L
2SC945
2SC644
2SC1674
2SC1675
2SC828



2SK49



2SC460



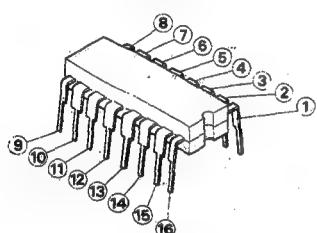
2SC1061



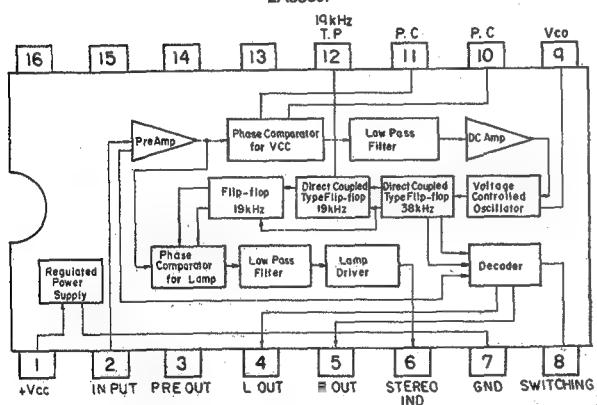
2SA715
2SA738



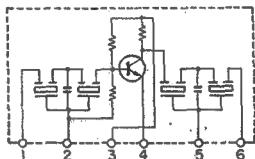
LA1230P
LA3350P



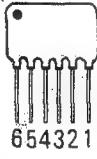
LA3350P



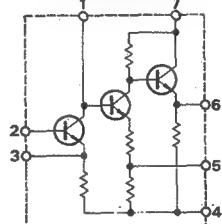
H8D1202



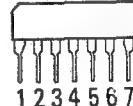
H8D1202



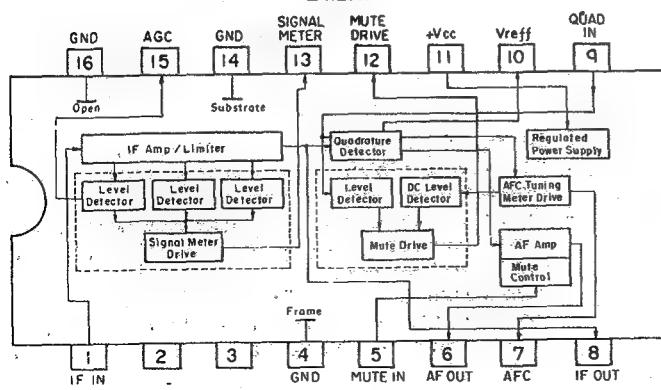
TA7063P
μPC566H3



TA7063P
μPC566H3

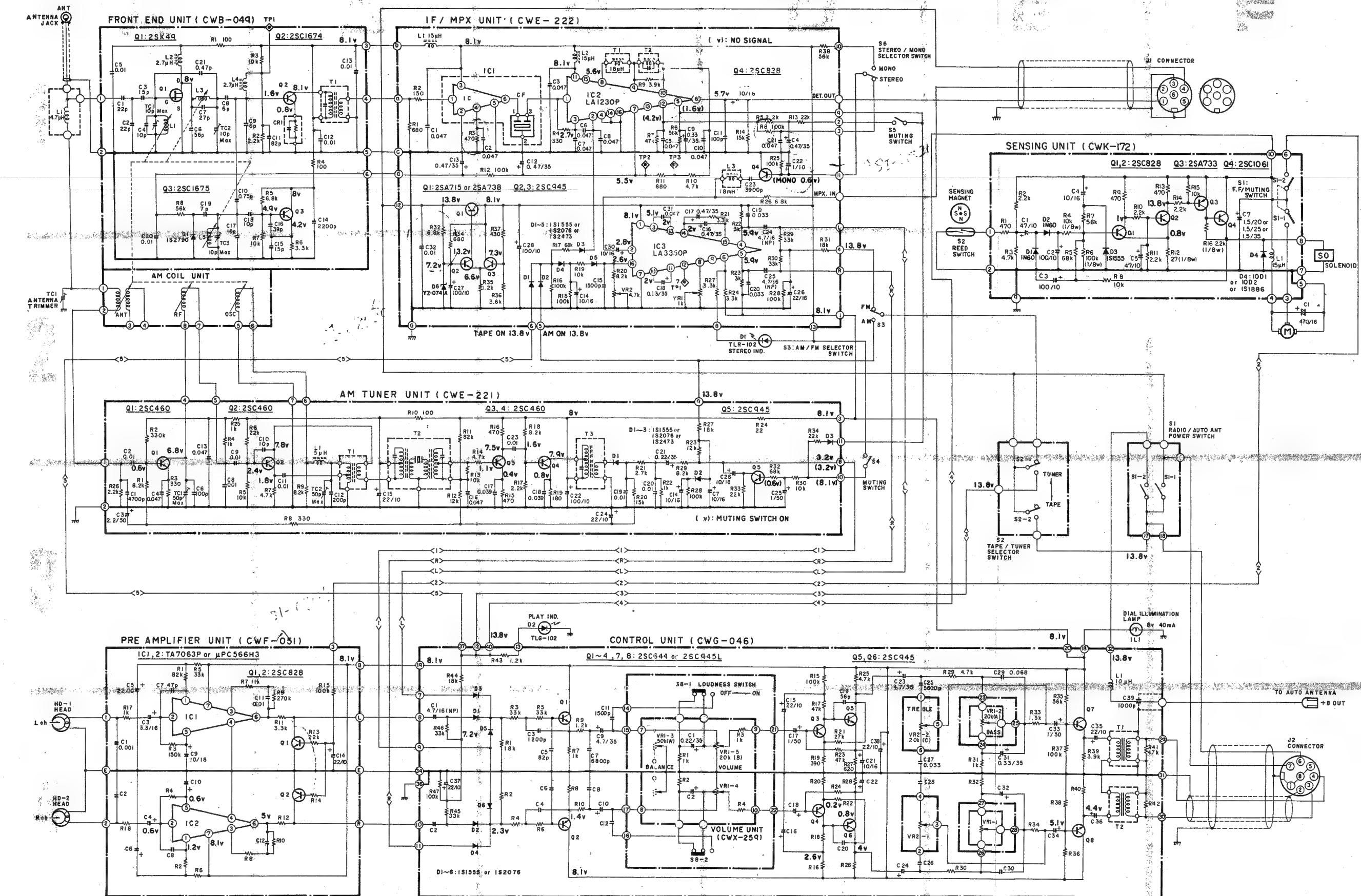


LA1230P



5. SCHEMATIC CIRCUIT DIAGRAM

KPH-9000



6. IF/MPX UNIT (CWE-222)

• Parts Connection

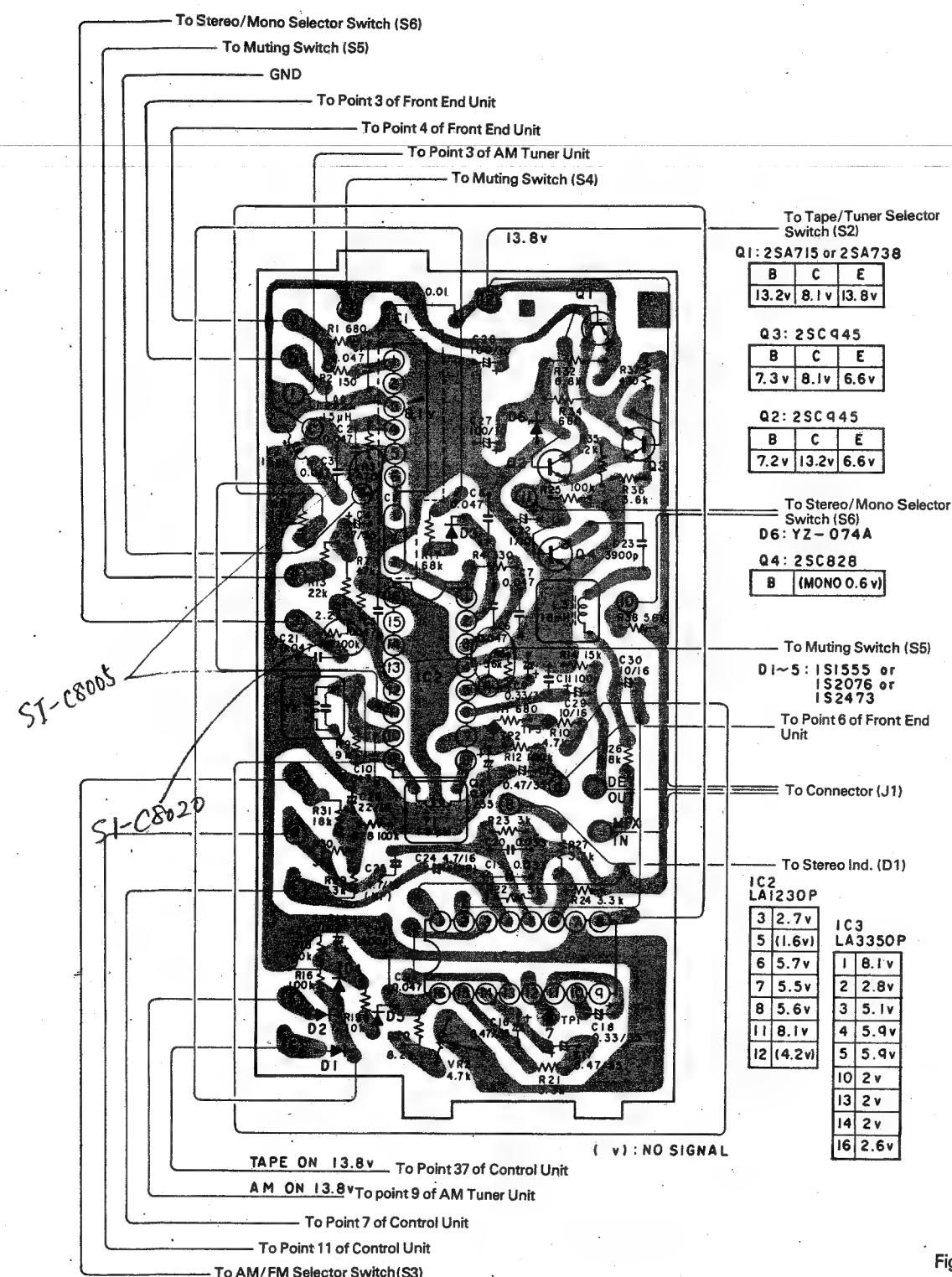


Fig. 14

KPH-9000

IF/MPX UNIT (CWE-222)

NOTICE: Of the descriptive symbols of the resistor and capacitor, the encircled alphabetic letter denotes the allowable error.

Example: RD1/4VS100 (J) C:±0.25pF F:±1pF J:±5% M:±20% Z: +80% -20%

• Parts List

MISCELLANEOUS

Ref. Key	Parts No.	Description
IC1	CWW-014	IC and Ceramic Filter, Black
	CWW-014	IC and Ceramic Filter, Blue
	CWW-014	IC and Ceramic Filter, Red
	CWW-014	IC and Ceramic Filter, Orange
	CWW-014	IC and Ceramic Filter, White
	CWW-015	IC and Ceramic Filter, Green
	CWW-015	IC and Ceramic Filter, Black
	CWW-015	IC and Ceramic Filter, Red
	CWW-015	IC and Ceramic Filter, White
	CWW-015	IC and Ceramic Filter, Yellow
IC2	LA1230P	IC
IC3	LA3350P	IC
Q1	2SA715-C,D or 2SA738-C,D	Transistor
Q2	2SC945-K,P,Q	Transistor
Q3	2SC945-K,P,Q	Transistor
Q4	2SC828-Q,R	Transistor
D1	1S1555 or 1S2076 or 1S2473	Diode
D2	1S1555 or 1S2076 or 1S2473	Diode
D3	1S1555 or 1S2076 or 1S2473	Diode

RESISTORS

Ref. Key	Parts No.	Description
R1	RD1/8VS681J	Resistor 680Ω 1/8W
R2	RD1/8VS151J	Resistor 150Ω 1/8W
R3	RD1/8VS441J	Resistor 170Ω 1/8W
R4	RD1/8VS331J	Resistor 330Ω 1/8W
R5	RD1/8VS222J	Resistor 2.2kΩ 1/8W
R6	RD1/8VS563J	Resistor 56kΩ 1/8W
R7	RD1/8VS473J	Resistor 47kΩ 1/8W
R8	RD1/8VS104J	Resistor 100kΩ 1/8W
R9	RD1/8VS392J	Resistor 3.9kΩ 1/8W
R10	RD1/4PS472J	Resistor 4.7kΩ 1/4W

Ref. Key	Parts No.	Description
R11	RD1/4PS681J	Resistor 680Ω 1/4W
R12	RD1/8VS104J	Resistor 100kΩ 1/8W
R13	RD1/8VS223J	Resistor 22kΩ 1/8W
R14	RD1/8VS153J	Resistor 15kΩ 1/8W
R15	VACANT	
R16	RD1/8VS104J	Resistor 100kΩ 1/8W
R17	RD1/8VS683J	Resistor 68kΩ 1/8W
R18	RD1/8VS104J	Resistor 100kΩ 1/8W
R19	RD1/8VS103J	Resistor 10kΩ 1/8W
R20	RD1/8VS822J	Resistor 8.2kΩ 1/8W

Ref. Key	Parts No.	Description		
R21	RD1/8VS332J	Resistor	3.3kΩ	1/8W
R22	RD1/8VS302J	Resistor	3kΩ	1/8W
R23	RD1/8VS302J	Resistor	3kΩ	1/8W
R24	RD1/8VS332J	Resistor	3.3kΩ	1/8W
R25	RD1/8VS104J	Resistor	100kΩ	1/8W
R26	RD1/8VS682J	Resistor	6.8kΩ	1/8W
R27	RD1/8VS332J	Resistor	3.3kΩ	1/8W
R28	RD1/8VS104J	Resistor	100kΩ	1/8W
R29	RD1/8VS333J	Resistor	33kΩ	1/8W
R30	RD1/8VS333J	Resistor	33kΩ	1/8W

Ref. Key	Parts No.	Description		
R31	RD1/8VS183J	Resistor	18kΩ	1/8W
R32	RD1/8VS682J	Resistor	6.8kΩ	1/8W
R33	VACANT			
R34	RD1/8VS681J	Resistor	680Ω	1/8W
R35	RD1/8VS122J	Resistor	1.2kΩ	1/8W
R36	RD1/4VS362J	Resistor	3.6kΩ	1/4W
R37	RD1/4VS431J	Resistor	430Ω	1/4W
R38	RD1/8VS563J	Resistor	56kΩ	1/8W
R33	RD1/8PS333J			33kΩ

CAPACITORS

Ref. Key	Parts No.	Description		
C1	CKDYF473Z25	Capacitor	0.047μF	25V
C2	CKDYF473Z25	Capacitor	0.047μF	25V
C3	CKDYF473Z25	Capacitor	0.047μF	25V
C4	CSZAR47M35	Capacitor	0.47μF	35V
C5	CKDYF473Z25	Capacitor	0.047μF	25V
C6	CKDYF473Z25	Capacitor	0.047μF	25V
C7	CKDYF473Z25	Capacitor	0.047μF	25V
C8	CKDYF473Z25	Capacitor	0.047μF	25V
C9	CSZAR33M35	Capacitor	0.33μF	35V
C10	CKDYF473Z25	Capacitor	0.047μF	25V
C11	CKDYB101K50	Capacitor	100pF	50V
C12	CSZAR47M35	Capacitor	0.47μF	35V
C13	CSZAR47M35	Capacitor	0.47μF	35V
C14	CEA100P16	Capacitor	10μF	16V
C15	CQSA152J50	Capacitor	1500pF	50V
C16	CSZAR47M35	Capacitor	0.47μF	35V
C17	CSZAR47M35	Capacitor	0.47μF	35V
C18	CSZAR33M35	Capacitor	0.33μF	35V
C19	CQMA333K50	Capacitor	0.033μF	50V
C20	CQMA333K50	Capacitor	0.033μF	50V

Ref. Key	Parts No.	Description		
C21	CKDYF473Z25	Capacitor	0.047μF	25V
C22	CSZA010M10	Capacitor	1μF	10V
C23	CQSA392J50	Capacitor	3900pF	50V
C24	CEA4R7M16NP	Capacitor	4.7μF	16V
C25	CEA4R7M16NP	Capacitor	4.7μF	16V
C26	CEA220P16	Capacitor	22μF	16V
C27	CEA101P10	Capacitor	100μF	10V
C28	CEA101P10	Capacitor	100μF	10V
C29	CEA100P16	Capacitor	10μF	16V
C30	CEA100P16	Capacitor	10μF	16V
C31	CQMA473K50	Capacitor	0.047μF	50V
C32	CCG-019	Capacitor	0.01μF	50V
C33	CEA100P16		10μF	16V

7. AM TUNER UNIT (CWE-221)

- **Parts Connection**

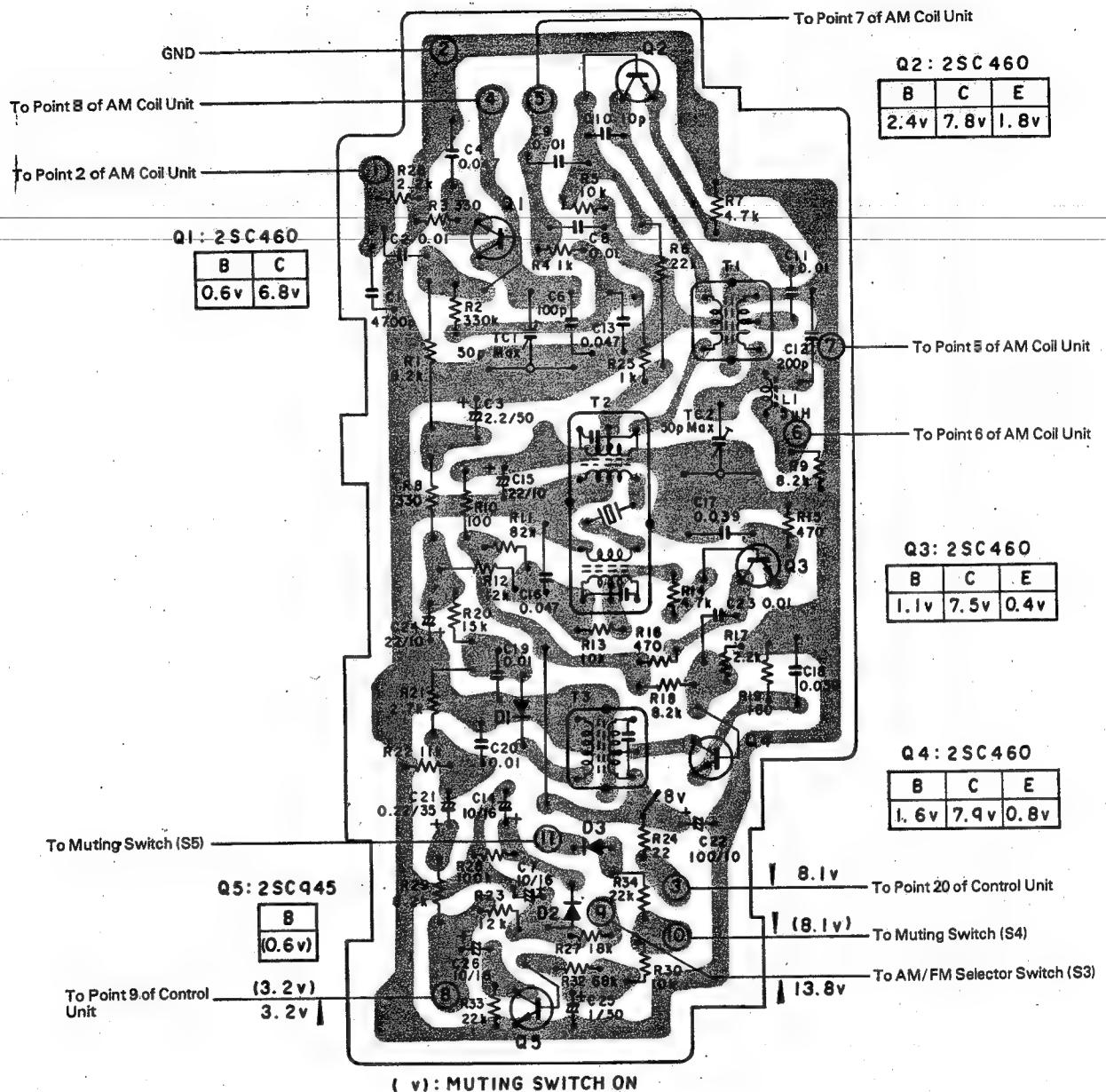


Fig. 15

• Parts List

MISCELLANEOUS

Ref. Key	Parts No.	Description
Q1	2SC460-A	Transistor
Q2	2SC460-B	Transistor
Q3	2SC460-A	Transistor
Q4	2SC460-A	Transistor
Q5	2SC945-K,P	Transistor
D1	1S1555 or 1S2076 or 1S2473	Diode
D2	1S1555 or 1S2076 or	Diode

RESISTORS

Ref. Key	Parts No.	Description
R1	RD1/4PS822J	Resistor 8.2kΩ 1/4W
R2	RD1/8VS334J	Resistor 330kΩ 1/8W
R3	RD1/8VS331J	Resistor 330Ω 1/8W
R4	RD1/8VS102J	Resistor 1kΩ 1/8W
R5	RD1/8VS103J	Resistor 10kΩ 1/8W
R6	RD1/4PS223J	Resistor 22kΩ 1/4W
R7	RD1/8VS472J	Resistor 4.7kΩ 1/8W
R8	RD1/8VS331J	Resistor 330Ω 1/8W
R9	RD1/8VS822J	Resistor 8.2kΩ 1/8W
R10	RD1/8VS101J	Resistor 100Ω 1/8W
R11	RD1/8VS823J	Resistor 82kΩ 1/8W
R12	RD1/8VS123J	Resistor 12kΩ 1/8W
R13	RD1/8VS103J	Resistor 10kΩ 1/8W
R14	RD1/8VS472J	Resistor 4.7kΩ 1/8W
R15	RD1/8VS471J	Resistor 470Ω 1/8W
R16	RD1/8VS471J	Resistor 470Ω 1/8W
R17	RD1/8VS222J	Resistor 2.2kΩ 1/8W
R18	RD1/8VS822J	Resistor 8.2kΩ 1/8W
R19	RD1/8VS181J	Resistor 180Ω 1/8W
R20	RD1/8VS153J	Resistor 15kΩ 1/8W

CAPACITORS

Ref. Key	Parts No.	Description
C1	CQMA472J50	Capacitor 4700pF 50V
C2	CCG-019	Capacitor 0.01μF 50V
C3	CEA2R2P50	Capacitor 2.2μF 50V
C4	CKDYF473Z25	Capacitor 0.047μF 25V
C5	VACANT	

Ref. Key	Parts No.	Description
D3	1S2473 1S1555 or 1S2076 or	Diode
T1	CTE-002	Coil
T2	CTE-037	IF Transformer
T3	CTE-038	IF Transformer
L1	CTF-005	Ferri-Inductor, 5μH
TC1	C43-610	Ceramic Trimmer, 50pF
TC2	C43-610	Ceramic Trimmer, 50pF

Ref. Key	Parts No.	Description
R21	RD1/4PS272J	Resistor 2.7kΩ 1/4W
R22	RD1/4VS113J	Resistor 11kΩ 1/4W
R23	RD1/8VS123J	Resistor 12kΩ 1/8W
R24	RD1/8VS220J	Resistor 22Ω 1/8W
R25	RD1/8VS102J	Resistor 1kΩ 1/8W
R26	RD1/8VS222J	Resistor 2.2kΩ 1/8W
R27	RD1/8VS183J	Resistor 18kΩ 1/8W
R28	RD1/8VS104J	Resistor 100kΩ 1/8W
R29	RD1/8VS822J	Resistor 8.2kΩ 1/8W
R30	RD1/8VS103J	Resistor 10kΩ 1/8W
R31	VACANT	
R32	RD1/8VS683J	Resistor 68kΩ 1/8W
R33	RD1/8VS223J	Resistor 22kΩ 1/8W
R34	RD1/8VS223J	Resistor 22kΩ 1/8W

Ref. Key	Parts No.	Description
C6	CCDSL101K50	Capacitor 100pF 50V
C7	CEA100P16	Capacitor 10μF 16V
C8	CQMA103J50	Capacitor 0.01μF 50V
C9	CCG-019	Capacitor 0.01μF 50V
C10	CCDSL100F50	Capacitor 10pF 50V

AM TUNER UNIT (CWE-221)

Ref. Key	Parts No.	Description		
C11	CCG-019	Capacitor	0.01 μ F	50V
C12	CCDSH201K50	Capacitor	200pF	50V
C13	CKDVF473Z25	Capacitor	0.047 μ F	25V
C14	CEA100P16	Capacitor	10 μ F	16V
C15	CEA220P10	Capacitor	22 μ F	10V
C16	CKDVF473Z25	Capacitor	0.047 μ F	25V
C17	CQMA393M50	Capacitor	0.039 μ F	50V
C18	CQMA393M50	Capacitor	0.039 μ F	50V
C19	CQMA103K50	Capacitor	0.01 μ F	50V
C20	CQMA103K50	Capacitor	0.01 μ F	50V

Ref. Key	Parts No.	Description		
C21	CSZAR22M35	Capacitor	0.22 μ F	35V
C22	CEA101P10	Capacitor	100 μ F	10V
C23	CCG-019	Capacitor	0.01 μ F	50V
C24	CEA220P10	Capacitor	22 μ F	10V
C25	CEA100P50	Capacitor	1 μ F	50V
C26	CEA100P16	Capacitor	10 μ F	16V

8. FRONT END UNIT (CWB-049)

• Parts Connection

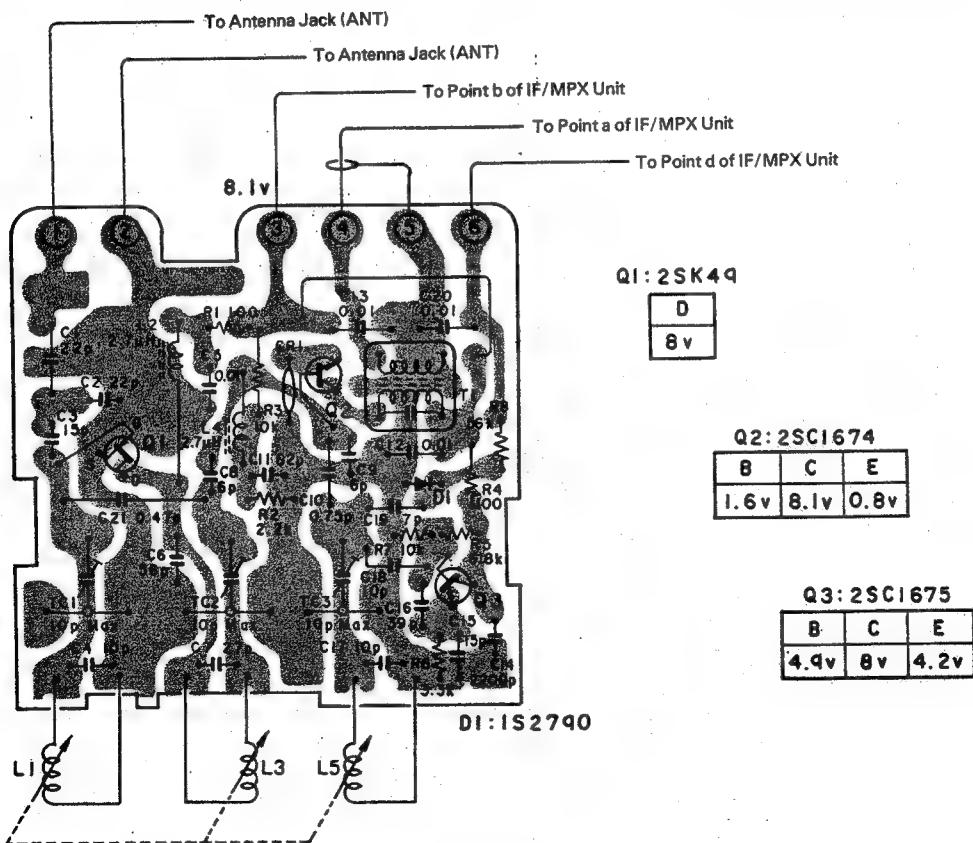


Fig. 16

• Parts List

MISCELLANEOUS

Ref. Key	Parts No.	Description
Q1	2SK49-H2	FET
Q2	2SC1674-L,K	Transistor
Q3	2SC1675-M	Transistor
D1	1S2790	Diode
L2	CTF-039 or	Ferri-Inductor, 2.7μH
	CTF-065	Ferri-Inductor, 2.7μH
L4	CTF-039	Ferri-Inductor, 2.7μH
T1	CTC-043	IF Transformer
TC1	CCG-008	Ceramic Trimmer, 10pF
TC2	CCG-008	Ceramic Trimmer, 10pF

RESISTORS

Ref. Key	Parts No.	Description			
R1	RD1/8VS101J	Resistor	100Ω	1/8W	
R2	RD1/8VS222J	Resistor	2.2kΩ	1/8W	
R3	RD1/8VS103J	Resistor	10kΩ	1/8W	
R4	RD1/8VS101J	Resistor	100Ω	1/8W	
R5	RD1/10PS682J	Resistor	6.8kΩ	1/10W	

CAPACITORS

Ref. Key	Parts No.	Description			
C1	CCDSL220K500	Capacitor	22pF	500V	
C2	CCDSL220J50	Capacitor	22pF	50V	
C3	CCDSL150J50	Capacitor	15pF	50V	
C4	CCDRH100F50	Capacitor	10pF	50V	
C5	CKDYF103Z25	Capacitor	0.01μF	25V	
C6	CCDSL560J50	Capacitor	56pF	50V	
C7	CCDRH270J50	Capacitor	27pF	50V	
C8	CCDCH060D50	Capacitor	6pF	50V	
C9	CCDCH060D50	Capacitor	6pF	50V	
C10	CGBR75K500	Capacitor	0.75pF	500V	

Ref. Key	Parts No.	Description
TC3	CCG-008	Ceramic Trimmer, 10pF
CR1	CCX-001	Multiple Components

Ref. Key	Parts No.	Description			
R6	RD1/10PS332J	Resistor	3.3kΩ	1/10W	
R7	RD1/10PS103J	Resistor	10kΩ	1/10W	
R8	RD1/8VS563J	Resistor	56kΩ	1/8W	

Ref. Key	Parts No.	Description			
C11	CCDSL820J50	Capacitor	82pF	50V	
C12	CKDYD103M50	Capacitor	0.01μF	50V	
C13	CKDYF103Z25	Capacitor	0.01μF	25V	
C14	CKDYB222K50	Capacitor	2200pF	50V	
C15	CCDTH150J50	Capacitor	15pF	50V	
C16	CCDTH390J50	Capacitor	39pF	50V	
C17	CCDTH100F50	Capacitor	10pF	50V	
C18	CCDTH100F50	Capacitor	10pF	50V	
C19	CCDCH070D50	Capacitor	7pF	50V	
C20	CKDYF103Z25	Capacitor	0.01μF	25V	
C21	CGBR47K500	Capacitor	0.47pF	500V	

9. PRE AMPLIFIER UNIT (CWF-051)

- **Parts Connection**

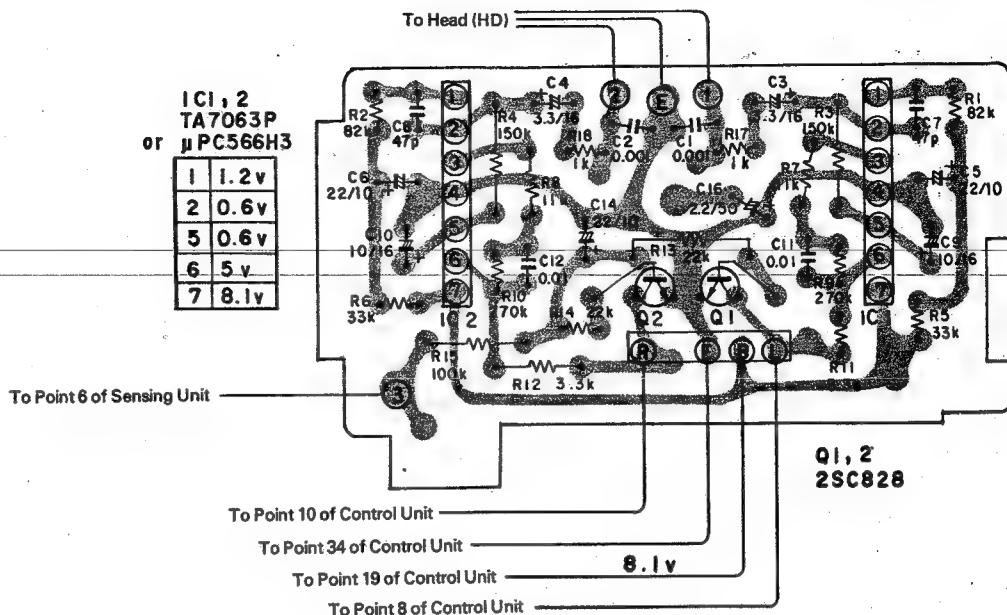


Fig. 17

- **Parts List**

MISCELLANEOUS

Ref. Key	Parts No.	Description
IC1	TA7063P-C,D,E µPC566H3-L,M,N	IC
IC2	TA7063P-C,D,E, µPC566H3-L,M,N	IC
Q1	2SC828-Q,R	Transistor

Ref. Key	Parts No.	Description
Q2	2SC828-Q,R	Transistor

256.1740LN 22

25C73274-G5

RESISTORS

Ref. Key	Parts No.	Description		
R1	RD1/4VS823J	Resistor	82kΩ	1/4W
R2	RD1/4VS823J	Resistor	82kΩ	1/4W
R3	RD1/4VS154J	Resistor	150kΩ	1/4W
R4	RD1/4VS154J	Resistor	150kΩ	1/4W
R5	RD1/4VS333J	Resistor	33kΩ	1/4W
R6	RD1/4VS333J	Resistor	33kΩ	1/4W
R7	RD1/4VS113J	Resistor	11kΩ	1/4W
R8	RD1/4VS113J	Resistor	11kΩ	1/4W
R9	RD1/4VS274J	Resistor	270kΩ	1/4W
R10	RD1/4VS274J	Resistor	270kΩ	1/4W

Ref. Key	Parts No.	Description		
R11	RD1/4VS332J	Resistor	3.3kΩ	1/4W
R12	RD1/4VS332J	Resistor	3.3kΩ	1/4W
R13	RD1/4VS223J	Resistor	22kΩ	1/4W
R14	RD1/4VS223J	Resistor	22kΩ	1/4W
R15	RD1/4VS104J	Resistor	100kΩ	1/4W
R16	VACANT			
R17	RD1/4VS102J	Resistor	1kΩ	1/4W
R18	RD1/4VS102J	Resistor	1kΩ	1/4W

CAPACITORS

Ref. Key	Parts No.	Description		
C1	CQMA102K50	Capacitor	0.001μF	50V
C2	CQMA102K50	Capacitor	0.001μF	50V
C3	CSZA3R3M16	Capacitor	3.3μF	16V
C4	CSZA3R3M16	Capacitor	3.3μF	16V
C5	CEA220P10	Capacitor	22μF	10V
C6	CEA220P10	Capacitor	22μF	10V
C7	CCDSL470K50	Capacitor	47pF	50V
C8	CCDSL470K50	Capacitor	47pF	50V
C9	CEA100P16	Capacitor	10μF	16V
C10	CEA100P16	Capacitor	10μF	16V

Ref. Key	Parts No.	Description		
C11	CQMA103K50	Capacitor	0.01μF	50V
C12	CQMA103K50	Capacitor	0.01μF	50V
C13	VACANT			
C14	CSZA220M10	Capacitor	22μF	10V

10. CONTROL UNIT (CWG-046)

• Parts Connection

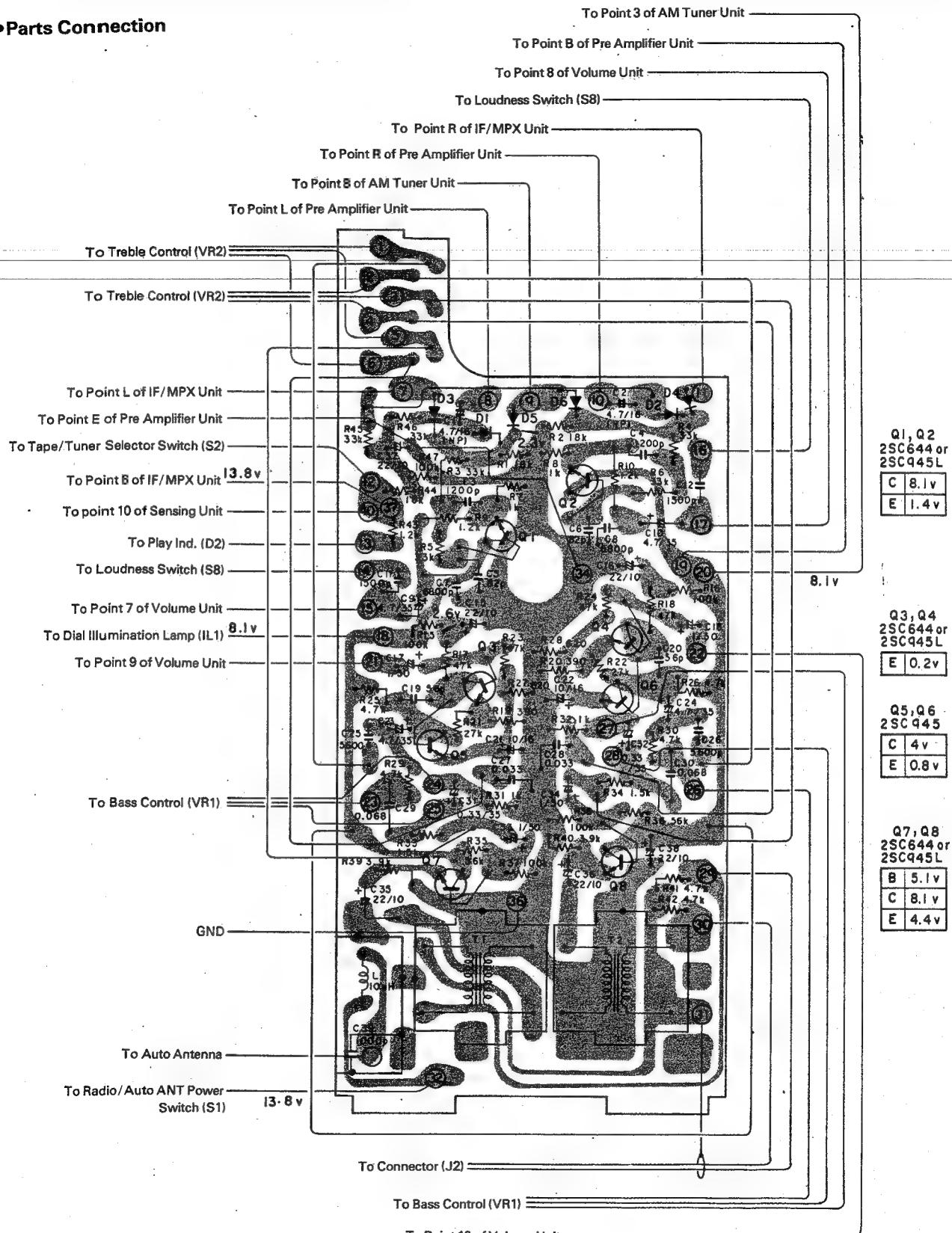


Fig. 18

• Parts List

MISCELLANEOUS

Ref. Key	Parts No.	Description
Q1	2SC644-R,S or 2SC945L-K,P,Q	Transistor
Q2	2SC644-R,S or 2SC945L-K,P,Q	Transistor
Q3	2SC644-R,S or 2SC945L-K,P,Q	Transistor
Q4	2SC644-R,S or 2SC945L-K,P,Q	Transistor
Q5	2SC828-Q,R,S or 2SC945-K,P,Q	Transistor
Q6	2SC828-Q,R,S or 2SC945-K,P,Q	Transistor
Q7	2SC644-R,S or 2SC945L-K,P,Q	Transistor
Q8	2SC644-R,S or 2SC945L-K,P,Q	Transistor
D1	1S1555 or 1S2076	Diode
D2	1S1555 or 1S2076	Diode

RESISTORS

Ref. Key	Parts No.	Description		
R1	RD1/4VS183J	Resistor	18kΩ	1/4W
R2	RD1/4VS183J	Resistor	18kΩ	1/4W
R3	RD1/4VS333J	Resistor	33kΩ	1/4W
R4	RD1/4VS333J	Resistor	33kΩ	1/4W
R5	RD1/4VS333J	Resistor	33kΩ	1/4W
R6	RD1/4VS333J	Resistor	33kΩ	1/4W
R7	RD1/4VS102J	Resistor	1kΩ	1/4W
R8	RD1/4VS102J	Resistor	1kΩ	1/4W
R9	RD1/4VS122J	Resistor	1.2kΩ	1/4W
R10	RD1/4VS122J	Resistor	1.2kΩ	1/4W
R11	VACANT			
R12	VACANT			
R13	VACANT			
R14	VACANT			
R15	RD1/4VS104J	Resistor	100kΩ	1/4W
R16	RD1/4VS104J	Resistor	100kΩ	1/4W
R17	RD1/4VS473J	Resistor	47kΩ	1/4W
R18	RD1/4VS473J	Resistor	47kΩ	1/4W
R19	RD1/4VS391J	Resistor	390Ω	1/4W
R20	RD1/4VS391J	Resistor	390Ω	1/4W

Ref. Key	Parts No.	Description
D3	1S1555 or 1S2076	Diode
D4	1S1555 or 1S2076	Diode
D5	1S1555 or 1S2076	Diode
D6	1S1555 or 1S2076	Diode
L1	CTH-035	Coil, 10μH
T1	CTH-040	Transformer
T2	CTH-040	Transformer

Ref. Key	Parts No.	Description		
R21	RD1/4VS273J	Resistor	27kΩ	1/4W
R22	RD1/4VS273J	Resistor	27kΩ	1/4W
R23	RD1/4VS473J	Resistor	47kΩ	1/4W
R24	RD1/4VS473J	Resistor	47kΩ	1/4W
R25	RD1/4VS472J	Resistor	4.7kΩ	1/4W
R26	RD1/4VS472J	Resistor	4.7kΩ	1/4W
R27	RD1/4VS621J	Resistor	620Ω	1/4W
R28	RD1/4VS621J	Resistor	1kΩ	1/4W
R29	RD1/4VS472J	Resistor	4.7kΩ	1/4W
R30	RD1/4VS472J	Resistor	4.7kΩ	1/4W
R31	RD1/4VS102J	Resistor	1kΩ	1/4W
R32	RD1/4VS102J	Resistor	1kΩ	1/4W
R33	RD1/4VS152J	Resistor	1.5kΩ	1/4W
R34	RD1/4VS152J	Resistor	1.5kΩ	1/4W
R35	RD1/4VS563J	Resistor	56kΩ	1/4W
R36	RD1/4VS563J	Resistor	56kΩ	1/4W
R37	RD1/4VS104J	Resistor	100kΩ	1/4W
R38	RD1/4VS104J	Resistor	100kΩ	1/4W
R39	RD1/4VS392J	Resistor	3.9kΩ	1/4W
R40	RD1/4VS392J	Resistor	3.9kΩ	1/4W

CONTROL UNIT (CWG-046)

Ref. Key	Parts No.	Description		
R41	RD1/4VS472J	Resistor	4.7kΩ	1/4W
R42	RD1/4VS472J	Resistor	4.7kΩ	1/4W
R43	RD1/4VS122J	Resistor	1.2kΩ	1/4W
R44	RD1/4VS183J	Resistor	18kΩ	1/4W
R45	RD1/4VS333J	Resistor	33kΩ	1/4W

Ref. Key	Parts No.	Description		
R46	RD1/4VS333J	Resistor	33kΩ	1/4W
R47	RD1/4VS104J	Resistor	100kΩ	1/4W

CAPACITORS

Ref. Key	Parts No.	Description		
C1	CEA4R7M16NP	Capacitor	4.7μF	16V
C2	CEA4R7M16NP	Capacitor	4.7μF	16V
C3	CQMA122K50	Capacitor	1200pF	50V
C4	CQMA122K50	Capacitor	1200pF	50V
C5	CCDSL820J50	Capacitor	82pF	50V
C6	CCDSL820J50	Capacitor	82pF	50V
C7	CQMA682K50	Capacitor	6800pF	50V
C8	CQMA682K50	Capacitor	6800pF	50V
C9	CEA4R7P35	Capacitor	4.7μF	35V
C10	CEA4R7P35	Capacitor	4.7μF	35V
C11	CQMA152M50	Capacitor	1500pF	50V
C12	CQMA152M50	Capacitor	1500pF	50V
C13	VACANT			
C14	VACANT			
C15	CEA220P10	Capacitor	22μF	10V
C16	CEA220P10	Capacitor	22μF	10V
C17	CEA010P50	Capacitor	1μF	50V
C18	CEA010P50	Capacitor	1μF	50V
C19	CCDSL560J50	Capacitor	56pF	50V
C20	CCDSL560J50	Capacitor	56pF	50V

Ref. Key	Parts No.	Description		
C21	CEA100P16	Capacitor	10μF	16V
C22	CEA100P16	Capacitor	10μF	16V
C23	CEA4R7P35	Capacitor	4.7μF	35V
C24	CEA4R7P35	Capacitor	4.7μF	35V
C25	CQMA562M50	Capacitor	5600pF	50V
C26	CQMA562M50	Capacitor	5600pF	50V
C27	CQMA333M50	Capacitor	0.033μF	50V
C28	CQMA333M50	Capacitor	0.033μF	50V
C29	CQMA683M50	Capacitor	0.068μF	50V
C30	CQMA683M50	Capacitor	0.068μF	50V
C31	CSZAR33M35	Capacitor	0.33μF	35V
C32	CSZAR33M35	Capacitor	0.33μF	35V
C33	CEA010P50	Capacitor	1μF	50V
C34	CEA010P50	Capacitor	1μF	50V
C35	CEA220P10	Capacitor	22μF	10V
C36	CEA220P10	Capacitor	22μF	10V
C37	CEA220P10	Capacitor	22μF	10V
C38	CEA220P10	Capacitor	22μF	10V
C39	CCL-067	Feed through Cap.	1000pF	

CONTROL UNIT (CWG-043) KP-88G

• Parts List

MISCELLANEOUS

Ref. Key	Parts No.	Description	Ref. Key	Parts No.	Description
Q1	2SC945-Q, P, K or 2SC828-Q, R, S	Transistor Transistor	Q6	2SC945-Q, P, K or 2SC828-Q, R, S	Transistor Transistor
Q2	2SC945-Q, P, K or 2SC828-Q, R, S	Transistor Transistor	VR1	CCS-157	Volume, 50kΩ (MN)
Q3	2SC945-Q, P, K or 2SC828-Q, R, S	Transistor Transistor	VR2	CCS-156	Volume, 20kΩ (A)
			VR3	CCS-156	Volume, 20kΩ (A)
Q4	2SC828-Q, R, S	Transistor	IL1	CEL-063	Lamp, 14V 60mA
Q5	2SC945-Q, P, K or 2SC828-Q, R, S	Transistor Transistor	IL2	CEL-063	Lamp, 14V 60mA

RESISTORS

Ref. Key	Parts No.	Description	Ref. Key	Parts No.	Description
R1	RD1/4VS224J	Resistor 220kΩ 1/4W	R16	RD1/4VS152J	Resistor 1.5kΩ 1/4W
R2	RD1/4VS224J	Resistor 220kΩ 1/4W	R17	RD1/4VS154J	Resistor 150kΩ 1/4W
R3	RD1/4VS823J	Resistor 82kΩ 1/4W	R18	RD1/4VS154J	Resistor 150kΩ 1/4W
R4	RD1/4VS823J	Resistor 82kΩ 1/4W	R19	RD1/4VS224J	Resistor 220kΩ 1/4W
R5	RD1/4VS472J	Resistor 4.7kΩ 1/4W	R20	RD1/4VS224J	Resistor 220kΩ 1/4W
R6	RD1/4VS472J	Resistor 4.7kΩ 1/4W	R21	RD1/4VS392J	Resistor 3.9kΩ 1/4W
R7	RD1/4VS272J	Resistor 2.7kΩ 1/4W	R22	RD1/4VS392J	Resistor 3.9kΩ 1/4W
R8	RD1/4VS272J	Resistor 2.7kΩ 1/4W	R23	RD1/4VS223J	Resistor 22kΩ 1/4W
R9	RD1/4VS272J	Resistor 2.7kΩ 1/4W	R24	RD1/4VS223J	Resistor 22kΩ 1/4W
R10	RD1/4VS272J	Resistor 2.7kΩ 1/4W	R25	RD1/4VS331J	Resistor 330Ω 1/4W
R11	RD1/4VS472J	Resistor 4.7kΩ 1/4W			
R12	RD1/4VS472J	Resistor 4.7kΩ 1/4W			
R13	RD1/4VS102J	Resistor 1kΩ 1/4W			
R14	RD1/4VS102J	Resistor 1kΩ 1/4W			
R15	RD1/4VS152J	Resistor 1.5kΩ 1/4W			

CAPACITORS

Ref. Key	Parts No.	Description	Ref. Key	Parts No.	Description
C1	CEA010P50	Capacitor 1μF 50V	C11	CSZAR33M35	Capacitor 0.33μF 35V
C2	CEA010P50	Capacitor 1μF 50V	C12	CSZAR33M35	Capacitor 0.33μF 35V
C3	CEA010P50	Capacitor 1μF 50V	C13	CEA010P50	Capacitor 1μF 50V
C4	CEA010P50	Capacitor 1μF 50V	C14	CEA010P50	Capacitor 1μF 50V
C5	CQMA562K50	Capacitor 5600pF 50V	C15	CEA010P50	Capacitor 1μF 50V
C6	CQMA562K50	Capacitor 5600pF 50V	C16	CEA010P50	Capacitor 1μF 50V
C7	CQMA333K50	Capacitor 0.033μF 50V	C17	CEA101P16	Capacitor 100μF 16V
C8	CQMA333K50	Capacitor 0.033μF 50V			
C9	CQMA683K50	Capacitor 0.068μF 50V			
C10	CQMA683K50	Capacitor 0.068μF 50V			

12. VOLUME UNIT (CWX-259)

• Parts List

Ref. Key	Parts No.	Description
VR1	CCS-166	Volume, 20kΩ (B)
R1	CCN-031	Resistor 1kΩ 1/10W
R2	CCN-031	Resistor 1kΩ 1/10W
R3	CCN-031	Resistor 1kΩ 1/10W
R4	RD1/4PS102J	Resistor 1kΩ 1/4W

Ref. Key	Parts No.	Description
C1	CSZAR22M35	Capacitor 0.22μF 35V
C2	CSZAR22M35	Capacitor 0.22μF 35V

13. MISCELLANEOUS PARTS LIST

Ref. Key	Parts No.	Description
D1	TLR-102	LED
D2	TLG-102	LED
C1	CEB471P16	Capacitor 470μF 16V
IL1	CEL-080	Lamp, 8V 40mA
TC1	CCG-022	Antenna Trimmer
VR2	CCS-165	Volume, 20kΩ (C)
S1	CCS-166	Volume
S2	CSL-010	Switch
S3	CSH-046	Switch
S4	CSN-048	Switch
S5	CSG-099	Switch
S6	CSG-100	Switch
S7	CSN-043 or CSN-055	Switch
S8	CSG-099	Switch

Ref. Key	Parts No.	Description
L1	CTH-025	Coil, 4.7μH
ANT	CDH-026	Antenna Connector
SO	CXP-021	Solenoid
HD	CPB-040	Head
M	CXM-049	Motor
J1	CDE-457	Connector
J2	CDE-453	Connector

11. SENSING UNIT (CWK-172)

• Parts Connection

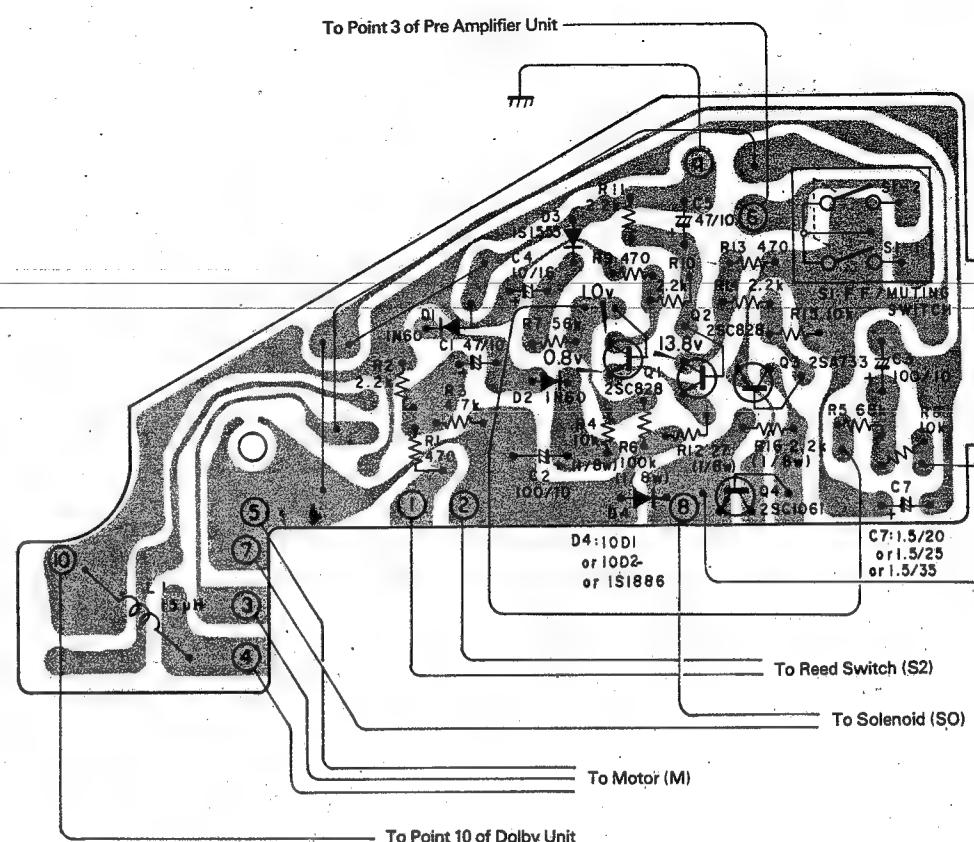


Fig. 13

• Parts List

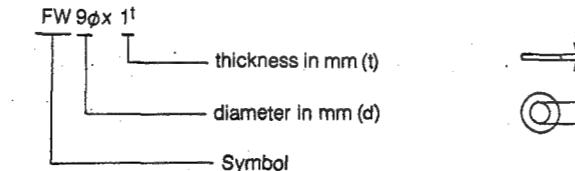
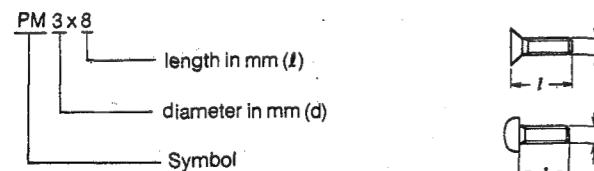
MISCELLANEOUS			RESISTORS			CAPACITORS		
Ref. Key	Parts No.	Description	Ref. Key	Parts No.	Description	Ref. Key	Parts No.	Description
Q1,2	2SC282	Transistor	R1	RD1/4VS471J	470Ω 1/4W	C1	CEA470P10	47μF 10V
Q3	2SA733	Transistor	R2	RD1/4VS222J	2.2kΩ 1/4W	C2,3	CEA101P10	100μF 10V
Q4	2SC1061	Transistor	R3	RD1/4VS472J	4.7kΩ 1/4W	C4	CEA100P18	10μF 16V
D1,2	IN-60	Diode	R4	CCN-023	10kΩ 1/8W	C5	CEA470P10	47μF 10V
	1S188FM-1	Diode	R5	RD1/4VS683J	68kΩ 1/4W	C6	VACANT	
D3	VACANT		R6	RD1/8PS104J	100kΩ 1/8W	C7	CSZA1R5M25	1.5μF 20V
D4	1S1555	Diode	R7	RD1/4VS563J	56kΩ 1/4W			
D5	VACANT		R8	RD1/4VS103J	10kΩ 1/4W			
D6	1001 or 10D2 or	Diode	R9	RD1/4VS471J	470Ω 1/4W			
	10D2 or	Diode	R10,11	RD1/4VS222J	2.2kΩ 1/4W			
	1S1886	Diode	R12	CCN-022	27Ω 1/8W			
L1	CTH-054	Coil, 100μH	R13	RD1/4VS471J	470Ω 1/4W			
S1	CSN-047	Switch	R14	RD1/4VS222J	2.2kΩ 1/4W			
			R15	RD1/4VS103J	10kΩ 1/4W			
			R16	CCN-021	2.2kΩ 1/8W			

14. NOMENCLATURE OF SCREWS, WASHERS AND NUTS

The following symbols stand for screws, washers and nuts as shown in exploded view.

Symbol	Description	Shape
RT	Brazier head tapping screw	
PT	Pan head tapping screw	
BT	Binding head tapping screw	
CT	Countersunk head tapping screw	
TT	Truss head tapping screw	
OCT	Oval countersunk head tapping screw	
PM	Pan head machine screw	
CM	Countersunk head machine screw	
OCM	Oval countersunk head machine screw	
TM	Truss head machine screw	
BM	Binding head machine screw	
PSA	Pan head screw with spring lock washer	
PSB	Pan head screw with spring lock washer and flat washer	
PSF	Pan head screw with flat washer	

EXAMPLE



15. CABINET EXPLODED VIEW

KPH-9000

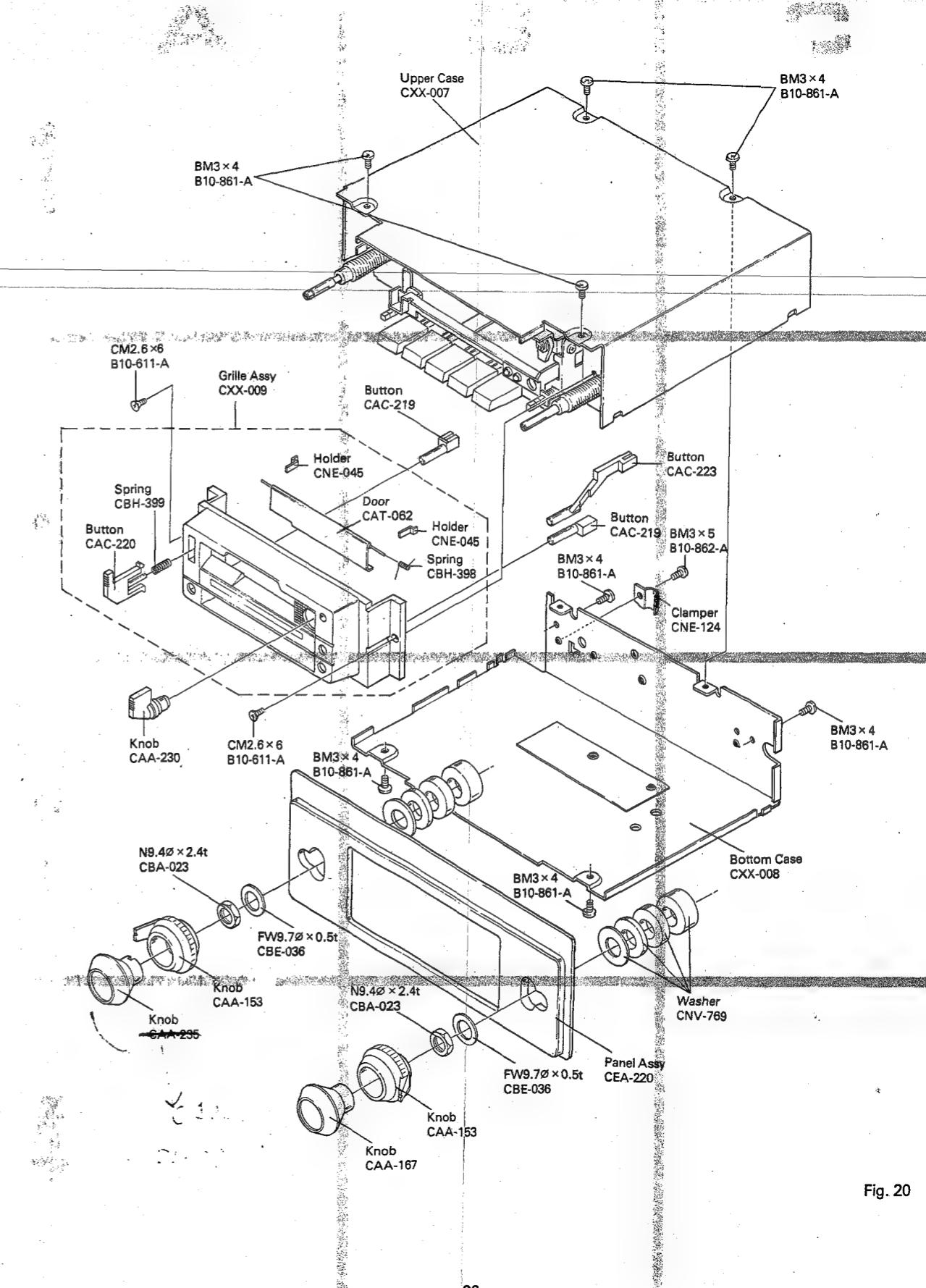


Fig. 20

16. CHASSIS EXPLODED VIEW

KPH-900

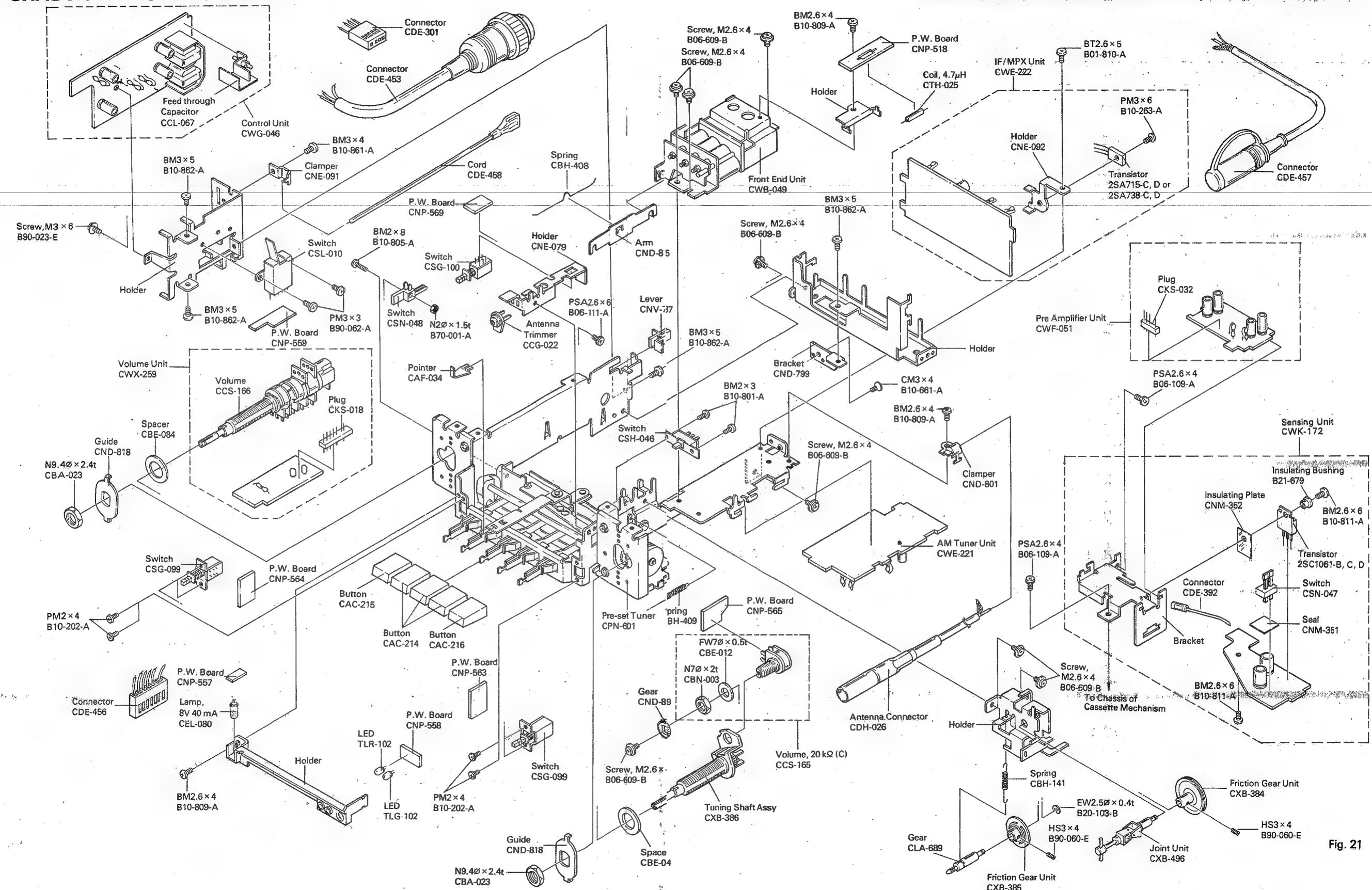


Fig. 21

17. PACKING METHOD

NOTICE: Part whose parts number is omitted is subject to being not supplied.
KPH-9000

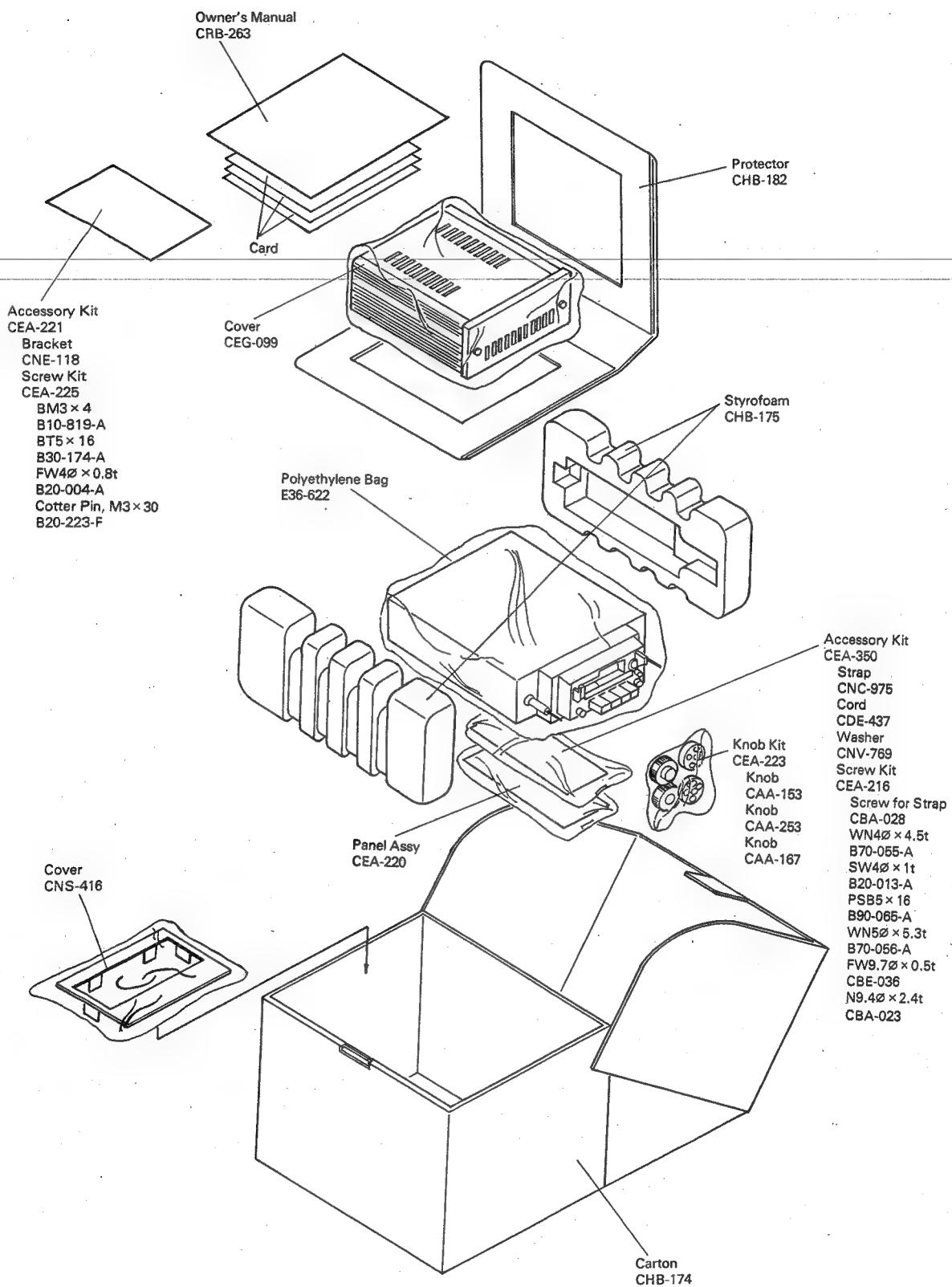


Fig. 22

MEMO

CASSETTE MECHANISM INFORMATION

1. MECHANISM DESCRIPTION

• Cassette Loading

1. Cassette insertion causes Arm (1) to move in the arrowed direction (see Fig. 1).

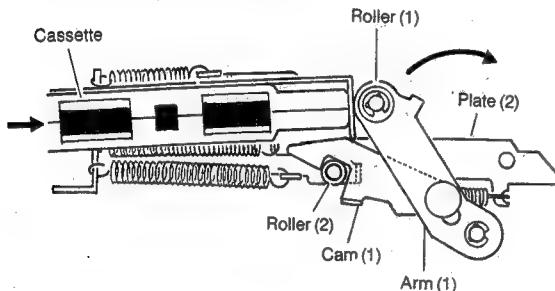


Fig. 1

2. Cam (1) draws Roller (2) to the right (see Fig. 2). With this, the fulcrum of Cam (1) causes the oval hole in Arm (1) to move downward.

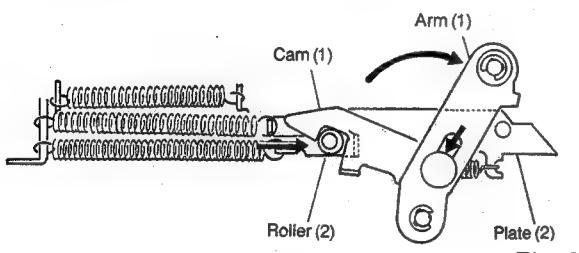


Fig. 2

3. Simultaneous with the movement of Roller (2), Plate (1) starts to move and pushes Plate (2) rightward (see Fig. 3).

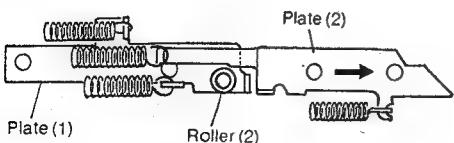


Fig. 3

4. Arm (2) is designed to cause vertical cassette movements. In eject position, Arm (2) locks Plate (2) at point A, and, by tension of Spring (2), is left at the position where Plate (2) comes to a stop (see Fig. 4).

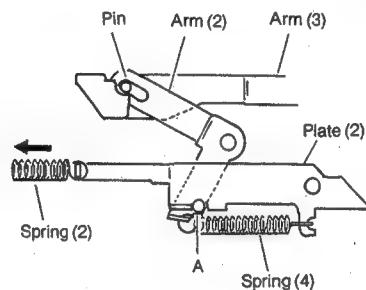


Fig. 4

5. With Plate (2), moving rightward, as mentioned in 1~3 above, Arm (2), through tension of Spring (4), acts to lower the cassette holder pin (see Fig. 5). However, this pin, which is supported by point B of Arm (3), is left stopped through its own inertia.

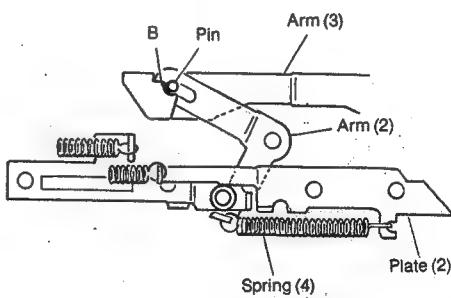


Fig. 5

MECHANISM DESCRIPTION

6. With Arm (1) pushed to the stroke limit, the notched part of Arm (3) locks Arm (1), with the result that, by the action of Spring (6), Arm (3) moves leftward a distance corresponding to the stroke in the oval hole at point C (see Fig. 6). The pin, then, now freed from support, as described in Item 5 descends and drops the cassette (see Fig. 7).

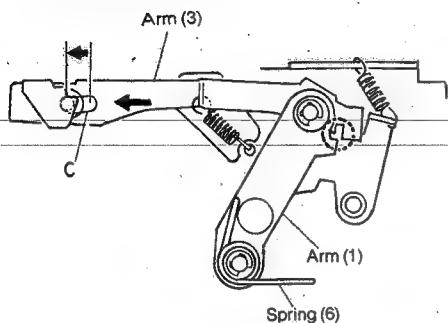


Fig. 6

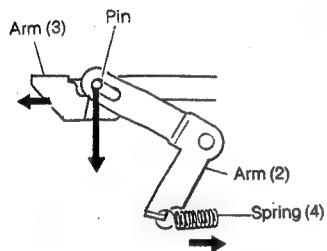


Fig. 7

• Head Base

1. The head base is kept engaged with Plate (3) through Arm (4). Plate (3) moves to the right and causes Arm (4) to rotate with point D as a fulcrum and, in turn, to cause the Head Base to move forward (see Fig. 8). However, it is necessary that the Head Base not move forward until the cassette drops into position.

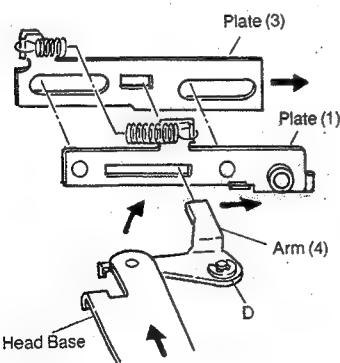


Fig. 8

2. For this purpose, Arm (5) is locked by Plate (3) until the cassette is positioned (see Fig. 9).

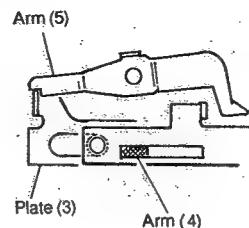


Fig. 9

3. The drop of the cassette causes the pin to push down the right end of Arm (5) and release the locking of Plate (3). Spring (1) then causes Plate (3) to move to the right and, in turn, move the Head Base forward (see Fig. 10).

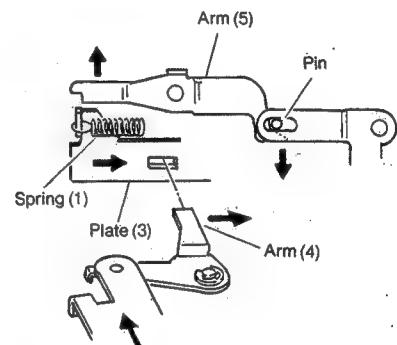


Fig. 10

• Eject Mechanism

1. Push Cam (2) to eject the cassette (see Fig. 11). Push Cam (2) in the arrowed direction to push up Cam (1) and disengage it from Roller (2). Plate (1) is pulled leftward through Spring (3).

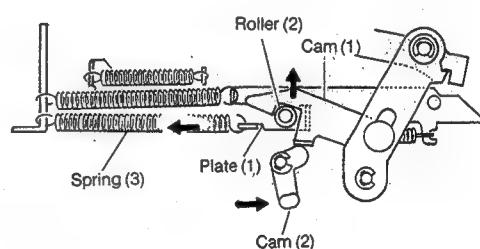


Fig. 11

MECHANISM DESCRIPTION

KPH-9000

2. Plate (3), through Spring (1), moves together with Plate (1) to turn Arm (4) and to make the Head Base move backward (see Fig. 12).

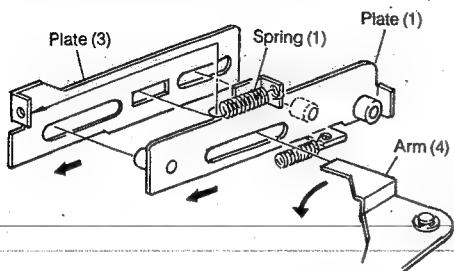


Fig. 12

3. With Plate (2) moving leftward, Arm (2) is pushed in the arrowed direction (Fig. 13) and lifts the pin, causing the cassette to rise.

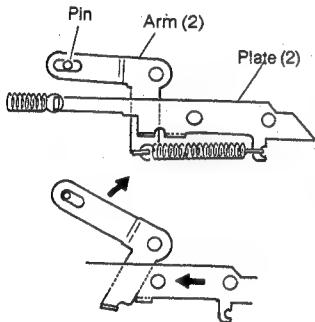


Fig. 13

4. Leftward movement of Plate (2) causes the pin called by Plate (2) to push up Arm (7), so that the locking of Arm (3) with the notched part of Arm (1) is released (see Fig. 14).

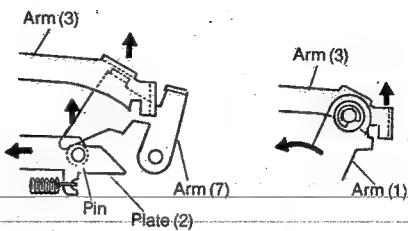


Fig. 14

5. With this, Arm (1), through Spring (6), starts to rotate in the arrowed direction and push out the cassette (see Fig. 15).

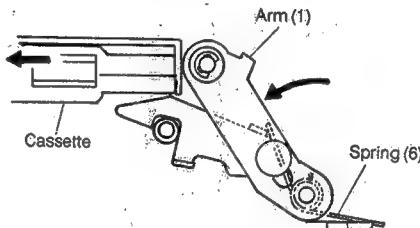


Fig. 15

MECHANISM DESCRIPTION

• F.F. Mechanism (see Fig. 16)

1. Turn the F.F./Rewind knob to F.F. to make Lever (1) move left and be locked by Roller (3). Lever (2) interlocked with Roller (3) is pulled together with Lever (3).
2. With Lever (3) pulled, Pin (1) interlocked with the eject cam is moved inward. With Pin (1) moving inward, the pushing of Lever (2) (directly connected with the eject button) will not cause cassette ejection, but instead release F.F. movement only.
3. Also, with Lever (1) moving left, Cam (1) moves in the arrowed direction and causes the Head Base to retreat and the Pinch Roller and Capstan Shaft to separate.
4. The movement of the Head Base causes Arm (1) to turn ON the F.F./Muting Switch to permit turning of motor at high speed.

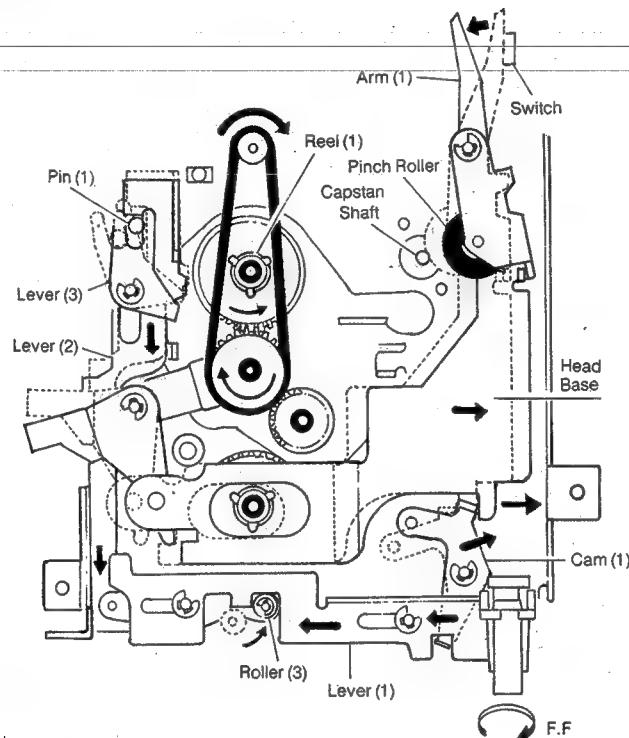


Fig. 16

• Rewind Mechanism (see Fig. 17)

1. Turning of the F.F./Rewind knob to the REW side causes Lever (1) to move rightward and be locked by Roller (3).
2. As in the function of the F.F. mechanism, Pin (1) moves inward.
3. With Lever (1) moving rightward, the Head Base is

retreated by the left end of Lever (1). Simultaneously, Cam (1) moves in the arrowed direction and pulls Lever (4).

4. With Lever (4) pulled, the linking gear moves toward Reel (2) and transmits motor rotation to Reel (2).

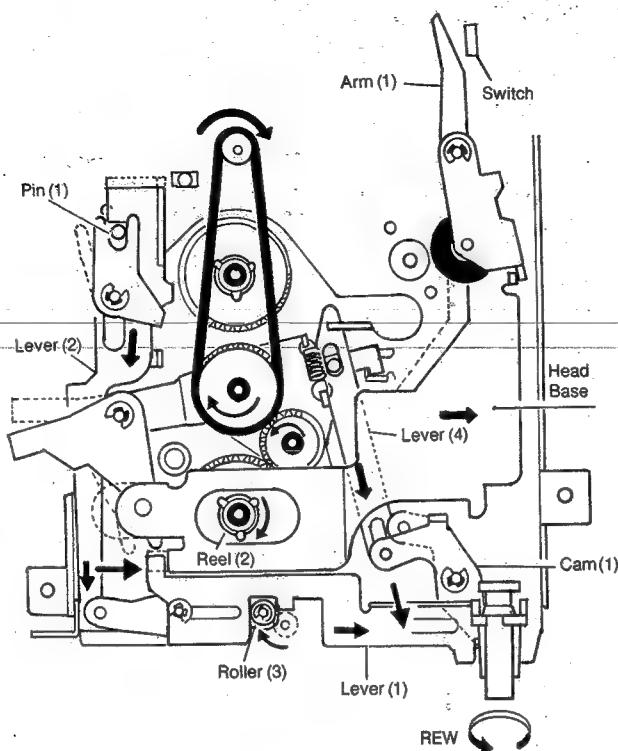


Fig. 17

2. ADJUSTMENT

2.1 AZIMUTH ADJUSTMENT

1. Connect VTVM and the speaker (4Ω) to the output lead in parallel. Connect the red lead to a DC regulated power supply and apply 13.8V.
2. Insert a 333Hz (STD-341) test tape. With balance set at medium and tone at maximum, turn volume for an output reading of 0dB.
3. Insert a 6.3kHz (STD-341) test tape.
4. Turn the azimuth adjusting screw so that outputs of Lch and Rch are each at maximum symmetrically (Fig. 18).

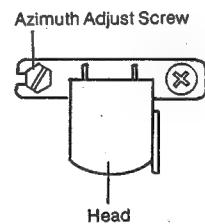
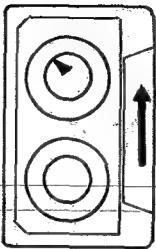
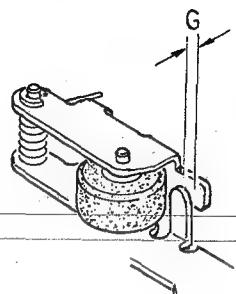
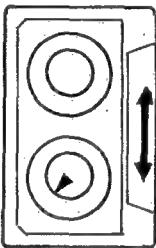
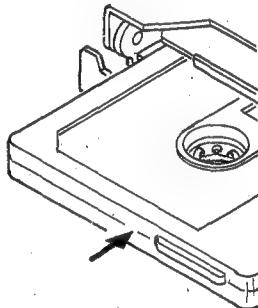
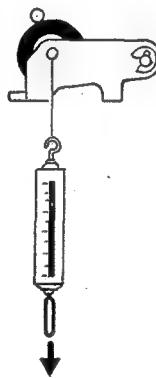
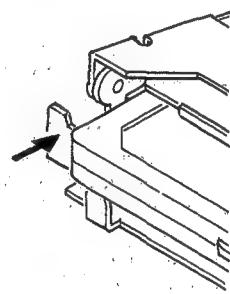
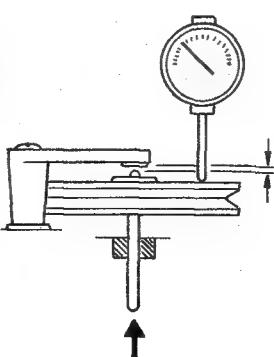
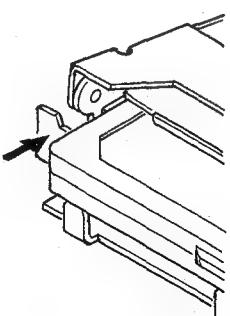


Fig. 18

ADJUSTMENT

2.3 CHECK POINTS OF CASSETTE MECHANISM

When replaced or repaired cassette mechanism parts, refer to values in the following table.

<p>(1) Wind torque Take measurement for 5~6 seconds using a cassette torque meter (120g/cm) to make sure torque is 55~75g/cm.</p> 	<p>(5) Clearance between pinch roller and head base stopper Determine using a thickness gauge that clearance is 0.5 ± 0.2 mm, when in play mode.</p> 
<p>(2) F.F. and rewind torque Take measurement for 5~6 seconds using a cassette torque meter (120g/cm) to make sure torque is 65g/cm or more.</p> 	<p>(6) Cassette loading force Using tension gauge (3 kg) at the center of the cassette, check to make sure the indication is less than 2.3 kg.</p> 
<p>(3) Pinch roller press adhesion force Measure using a tension gauge (500g) to make sure the load is 200~300g with the pinch roller starting to rotate in contact with the capstan shaft.</p> 	<p>(7) F.F. and rewind releasing force Using a tension gauge (1 kg) in the arrowed direction, check to make sure the indication is less than 0.5 kg.</p> 
<p>(4) Clearance between flywheel and flywheel bracket Set a dial pick gauge as shown in the figure, and check to make sure the difference is between 0.1 mm and 0.5 mm, when the flywheel is applied with pressure in the arrowed direction.</p> 	<p>(8) Eject force Using tension gauge (3 kg) in the arrowed direction, check to make sure the indication is less than 1 kg.</p> 

3. CASSETTE MECHANISM EXPLODED VIEW

NOTICE: Part whose parts number is omitted is subject to being not supplied.
KPH-9000

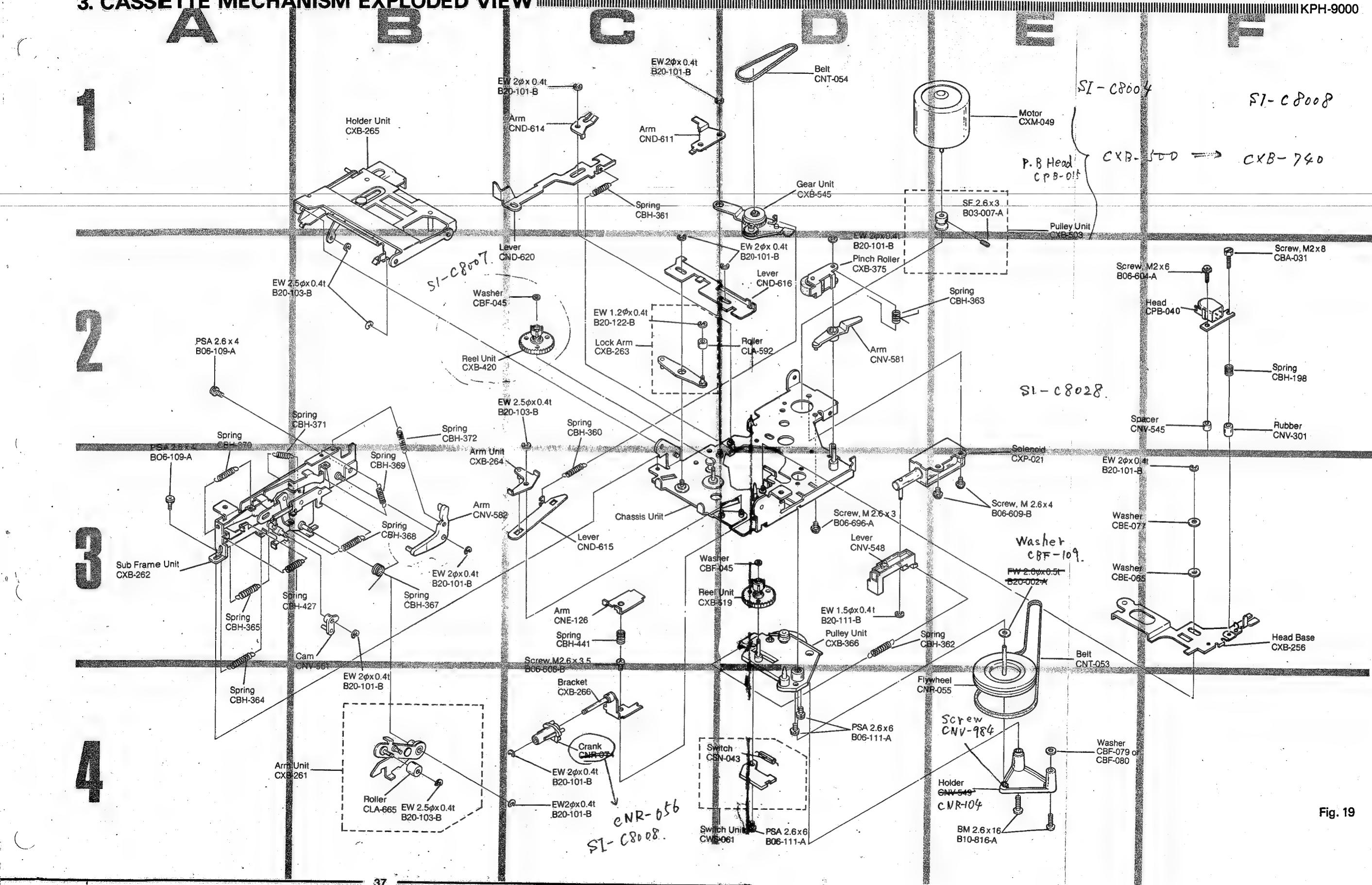


Fig. 19

KP-66G

E

CAR STEREO CASSETTE DECK

SERVICE MANUAL

561



SPECIFICATIONS

General

Power source	DC 13.8V (11~16V allowable)
Grounding system	Negative type
Dimensions (W x H x D)	122 x 50 x 155 mm
Weight	1.3 kg

Tape player

Tape	Compact cassette tape (C-30~C-90)
Tape speed	4.8cm/sec.
Fast forward time	Within 120 sec. for C-60
Rewind time	Within 120 sec. for C-60

Wow & flutter	No more than 0.13% (WRMS)
Frequency response	30~15,000 Hz
Crosstalk	More than 46 dB
Signal-to-noise ratio	More than 52 dB
Tone controls	Bass: ± 10 dB (100 Hz) Treble: ± 10 dB (10 kHz)
Loudness contour	+ 12 dB (100 Hz), (Volume: -30 dB) + 4 dB (10 kHz)
Maximum output level	More than 200 mV
Load impedance	100Ω

Note:
Specifications and the design subject to possible modification without notice due to improvement.

PIONEER

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1. PARTS LOCATION

KP-66G

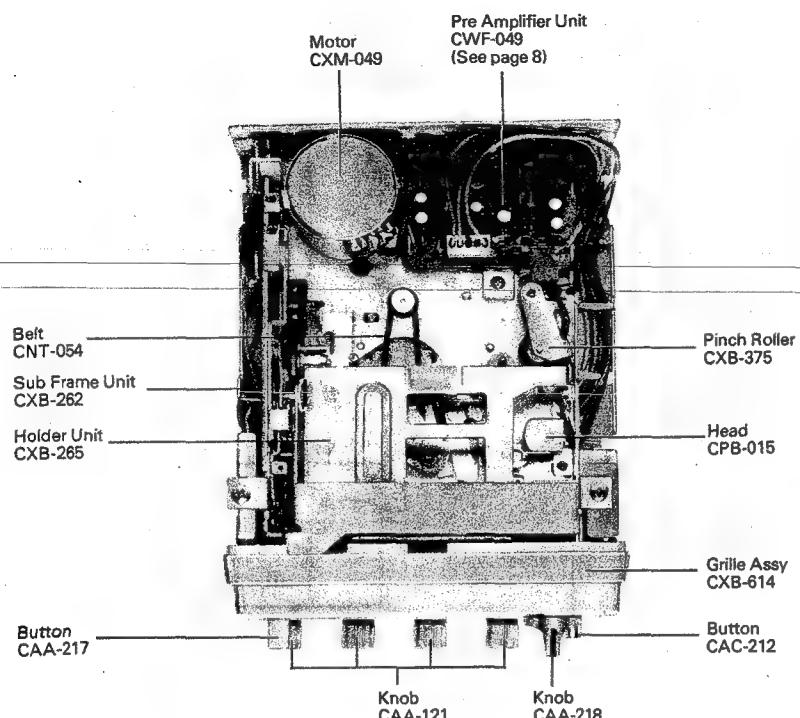


Fig. 1

2. CIRCUIT DESCRIPTION

• Level Diagram

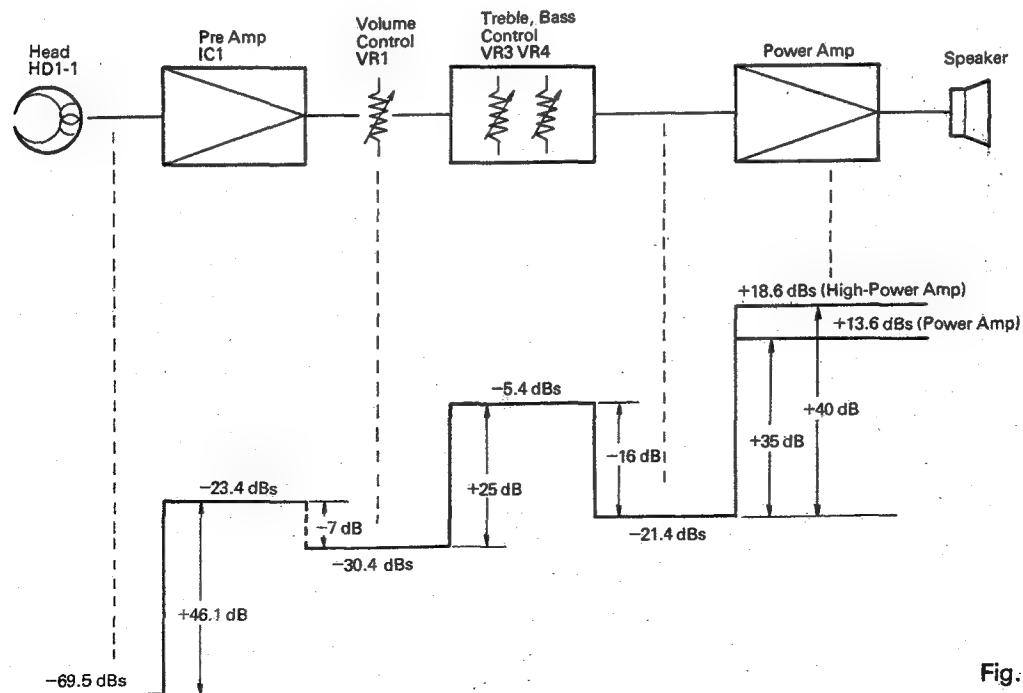


Fig. 2

CIRCUIT DESCRIPTION

- Block Diagram

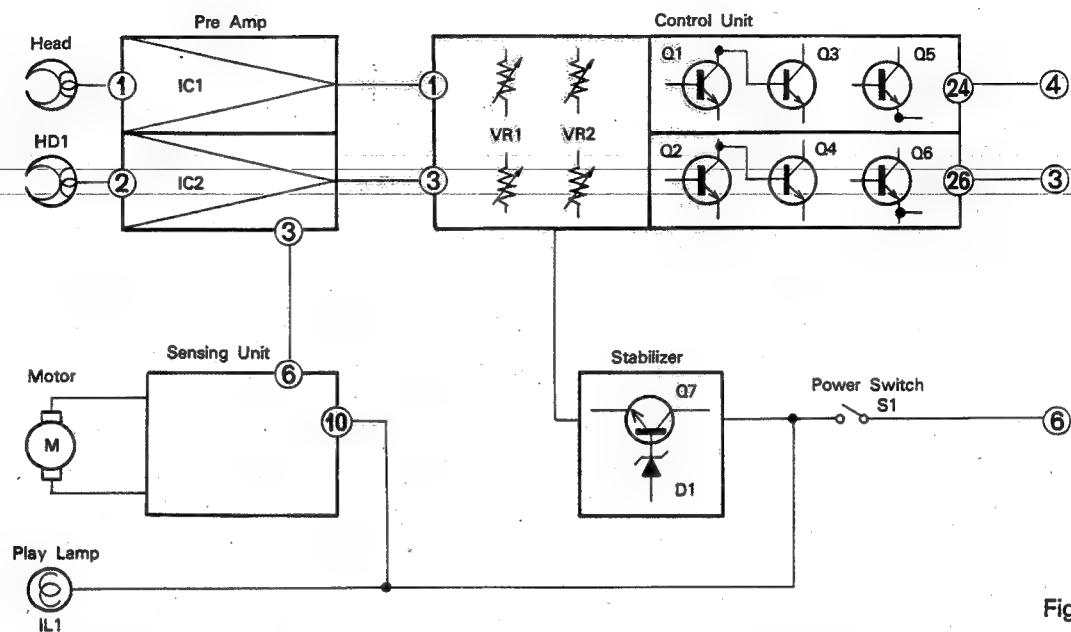


Fig. 3

3. DISASSEMBLY

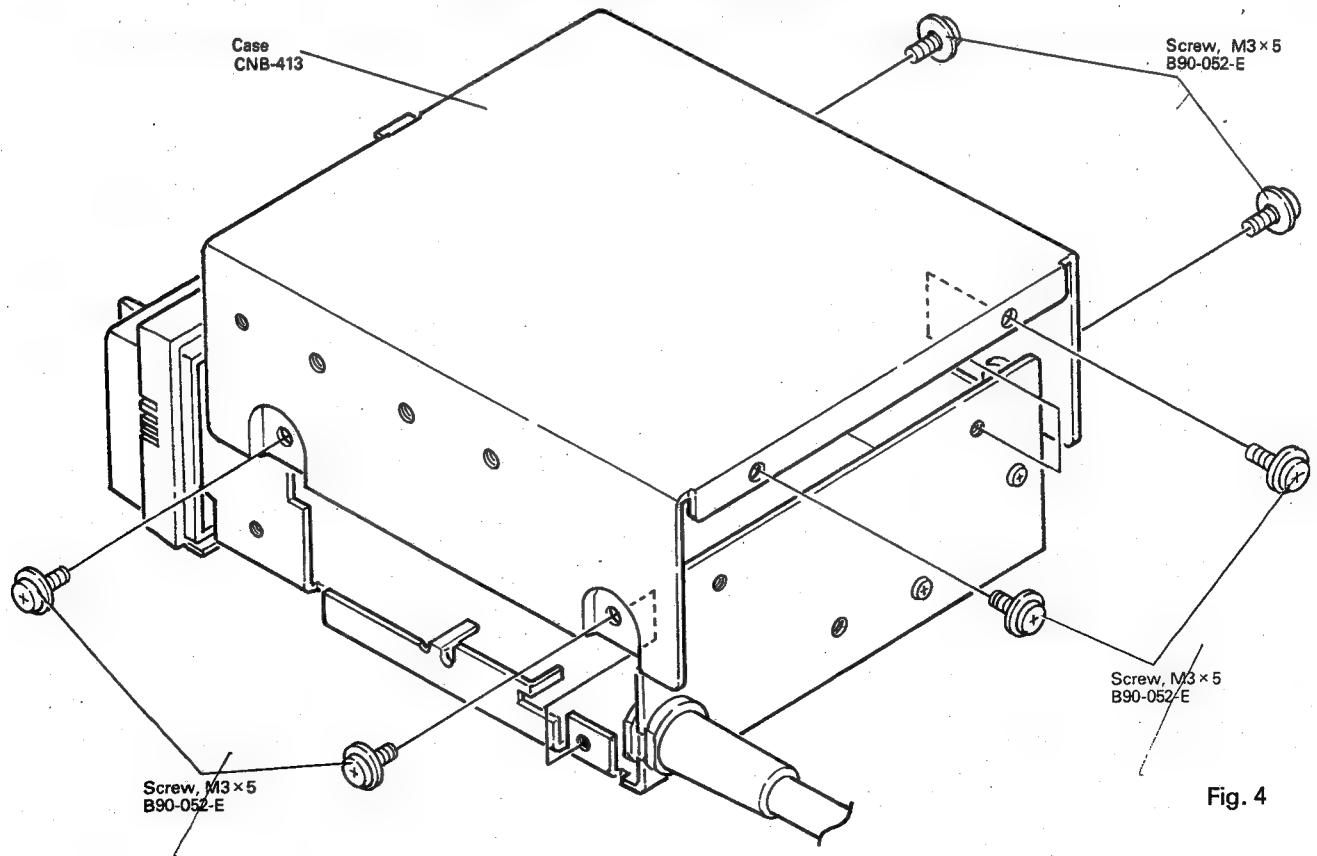
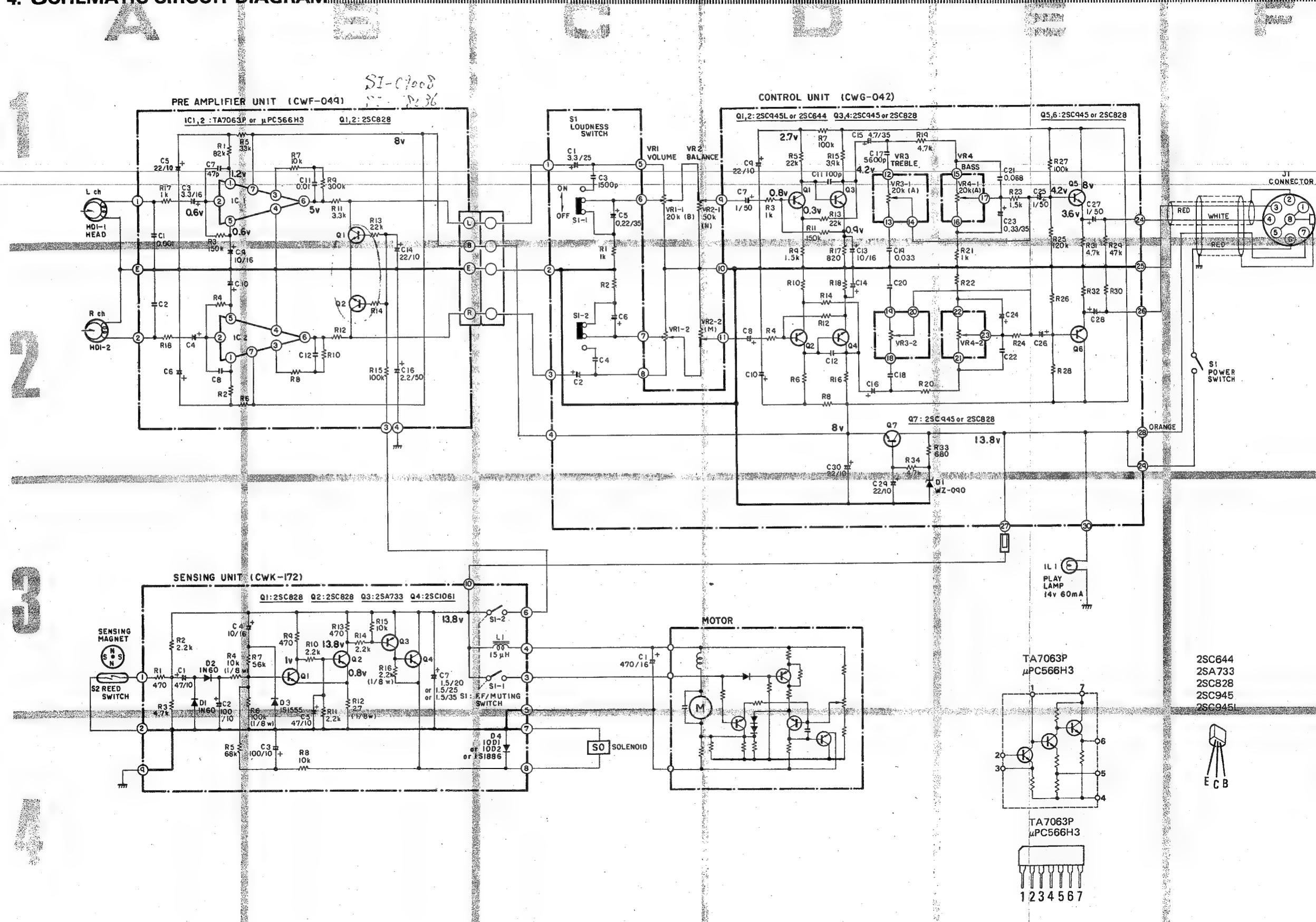


Fig. 4

4. SCHEMATIC CIRCUIT DIAGRAM

KP-66G



5. CONTROL UNIT (CWG-042)

• Parts Connection

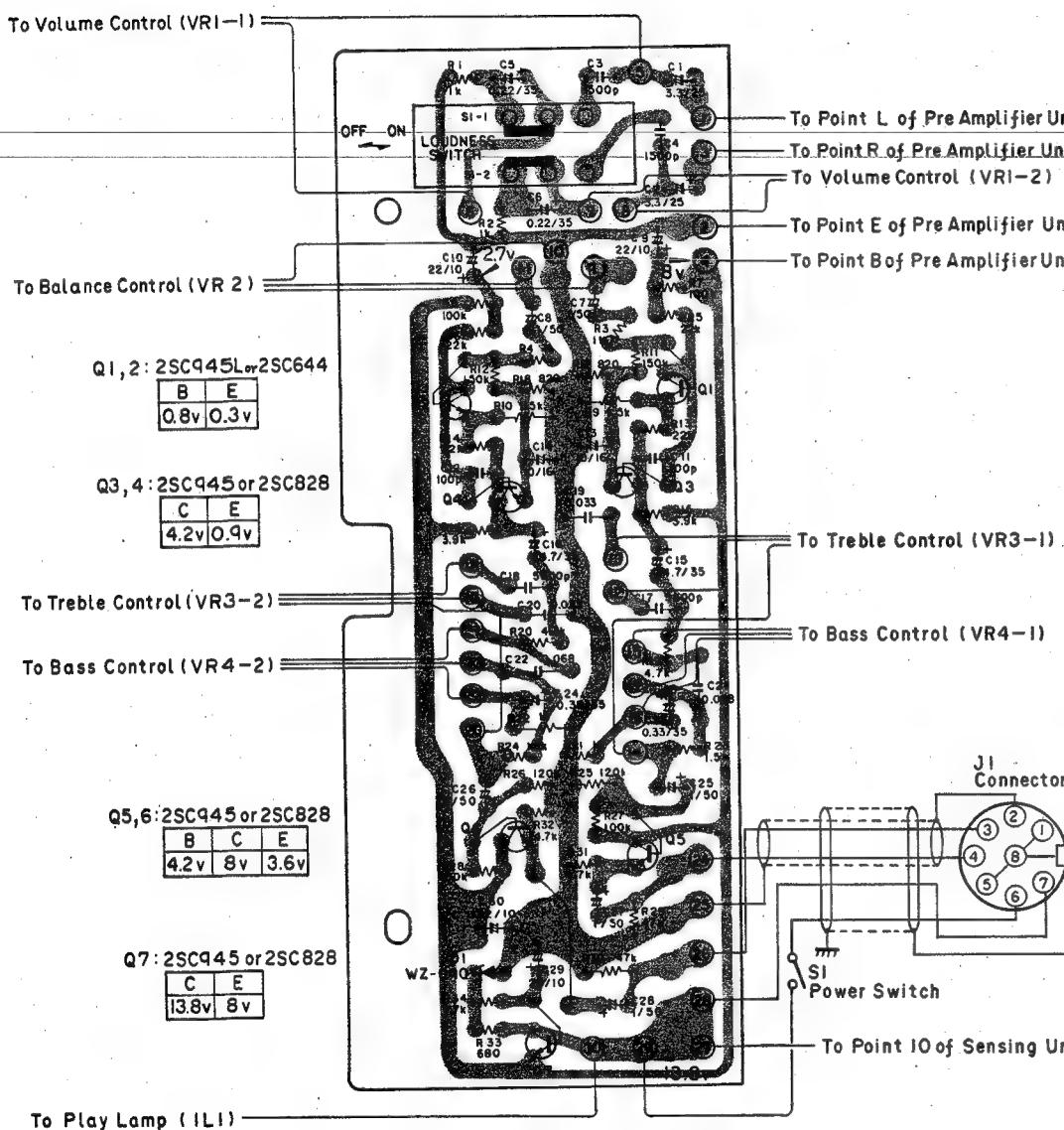


Fig. 6

KP-66G

CONTROL UNIT (CWG-042)

NOTICE: Of the descriptive symbols of the resistor and capacitor, the encircled alphabetic letter denotes the allowable error.

Example: RD1/4VS100 (J) C:±0.25pF F:±1pF J:±5% M:±20% Z: +80% -20%

CEA100 (P) 25 D:±0.5pF G:±2% K:±10% X: +40% -20% P: +100% -10%

• Parts List

MISCELLANEOUS

Ref. Key Parts No. Description

Q1	2SC945L-K, P or 2SC644-R, S	Transistor
Q2	2SC945L-K, P or 2SC644-R, S	Transistor
Q3	2SC945-K, P, Q orTransistor	
Q4	2SC828-Q, R, S	Transistor
Q5	2SC945-K, P, Q orTransistor	
	2SC828-Q, R, S	Transistor

Ref. Key Parts No. Description

Q6	2SC945-K, P, Q orTransistor	
Q7	2SC945-K, P, Q orTransistor	
D1	2SC828-Q, R, S	Transistor
	WZ-090	Diode
S1	CSG-096	Switch

RESISTORS

Ref. Key Parts No. Description

R1	RD1/4VS102J	Resistor	1kΩ	1/4W
R2	RD1/4VS102J	Resistor	1kΩ	1/4W
R3	RD1/4VS102J	Resistor	1kΩ	1/4W
R4	RD1/4VS102J	Resistor	1kΩ	1/4W
R5	RD1/4VS223J	Resistor	22kΩ	1/4W
R6	RD1/4VS223J	Resistor	22kΩ	1/4W
R7	RD1/4VS104J	Resistor	100kΩ	1/4W
R8	RD1/4VS104J	Resistor	100kΩ	1/4W
R9	RD1/4VS152J	Resistor	1.5kΩ	1/4W
R10	RD1/4VS152J	Resistor	1.5kΩ	1/4W
R11	RD1/4VS154J	Resistor	150kΩ	1/4W
R12	RD1/4VS154J	Resistor	150kΩ	1/4W
R13	RD1/4VS223J	Resistor	22kΩ	1/4W
R14	RD1/4VS223J	Resistor	22kΩ	1/4W
R15	RD1/4VS392J	Resistor	3.9kΩ	1/4W
R16	RD1/4VS392J	Resistor	3.9kΩ	1/4W
R17	RD1/4VS821J	Resistor	820Ω	1/4W
R18	RD1/4VS821J	Resistor	820Ω	1/4W
R19	RD1/4VS472J	Resistor	4.7kΩ	1/4W
R20	RD1/4VS472J	Resistor	4.7kΩ	1/4W

Ref. Key Parts No. Description

R21	RD1/4VS102J	Resistor	1kΩ	1/4W
R22	RD1/4VS102J	Resistor	1kΩ	1/4W
R23	RD1/4VS152J	Resistor	1.5kΩ	1/4W
R24	RD1/4VS152J	Resistor	1.5kΩ	1/4W
R25	RD1/4VS124J	Resistor	120kΩ	1/4W
R26	RD1/4VS124J	Resistor	120kΩ	1/4W
R27	RD1/4VS104J	Resistor	100kΩ	1/4W
R28	RD1/4VS104J	Resistor	100kΩ	1/4W
R29	RD1/4VS473J	Resistor	47kΩ	1/4W
R30	RD1/4VS473J	Resistor	47kΩ	1/4W
R31	RD1/4VS472J	Resistor	4.7kΩ	1/4W
R32	RD1/4VS472J	Resistor	4.7kΩ	1/4W
R33	RD1/4VS681J	Resistor	680Ω	1/4W
R34	RD1/4VS472J	Resistor	4.7kΩ	1/4W

CAPACITORS

Ref. Key	Parts No.	Description		
C1	CEA3R3P25	Capacitor	3.3 μ F	25V
C2	CEA3R3P25	Capacitor	3.3 μ F	25V
C3	CQMA152K50	Capacitor	1500pF	50V
C4	CQMA152K50	Capacitor	1500pF	50V
C5	CSZAR22M35	Capacitor	0.22 μ F	35V
C6	CSZAR22M35	Capacitor	0.22 μ F	35V
C7	CEA010P50	Capacitor	1 μ F	50V
C8	CEA010P50	Capacitor	1 μ F	50V
C9	CEA220P10	Capacitor	22 μ F	10V
C10	CSZA220M10	Capacitor	22 μ F	10V
C11	CCDSL101K50	Capacitor	100pF	50V
C12	CCDSL101K50	Capacitor	100pF	50V
C13	CEA100P16	Capacitor	10 μ F	16V
C14	CEA100P16	Capacitor	10 μ F	16V
C15	CEA4R7P35	Capacitor	4.7 μ F	35V

Ref. Key	Parts No.	Description		
C16	CEA4R7P35	Capacitor	4.7 μ F	35V
C17	CQMA562K50	Capacitor	5600pF	50V
C18	CQMA562K50	Capacitor	5600pF	50V
C19	CQMA333K50	Capacitor	0.033 μ F	50V
C20	CQMA333K50	Capacitor	0.033 μ F	50V
C21	CQMA683K50	Capacitor	0.068 μ F	50V
C22	CQMA683K50	Capacitor	0.068 μ F	50V
C23	CSZAR33M35	Capacitor	0.33 μ F	35V
C24	CSZAR33M35	Capacitor	0.33 μ F	35V
C25	CEA010P50	Capacitor	1 μ F	50V
C26	CEA010P50	Capacitor	1 μ F	50V
C27	CEA010P50	Capacitor	1 μ F	50V
C28	CEA010P50	Capacitor	1 μ F	50V
C29	CEA220P10	Capacitor	22 μ F	10V
C30	CEA220P10	Capacitor	22 μ F	10V

6. PRE AMPLIFIER UNIT (CWF-049)

• Parts Connection

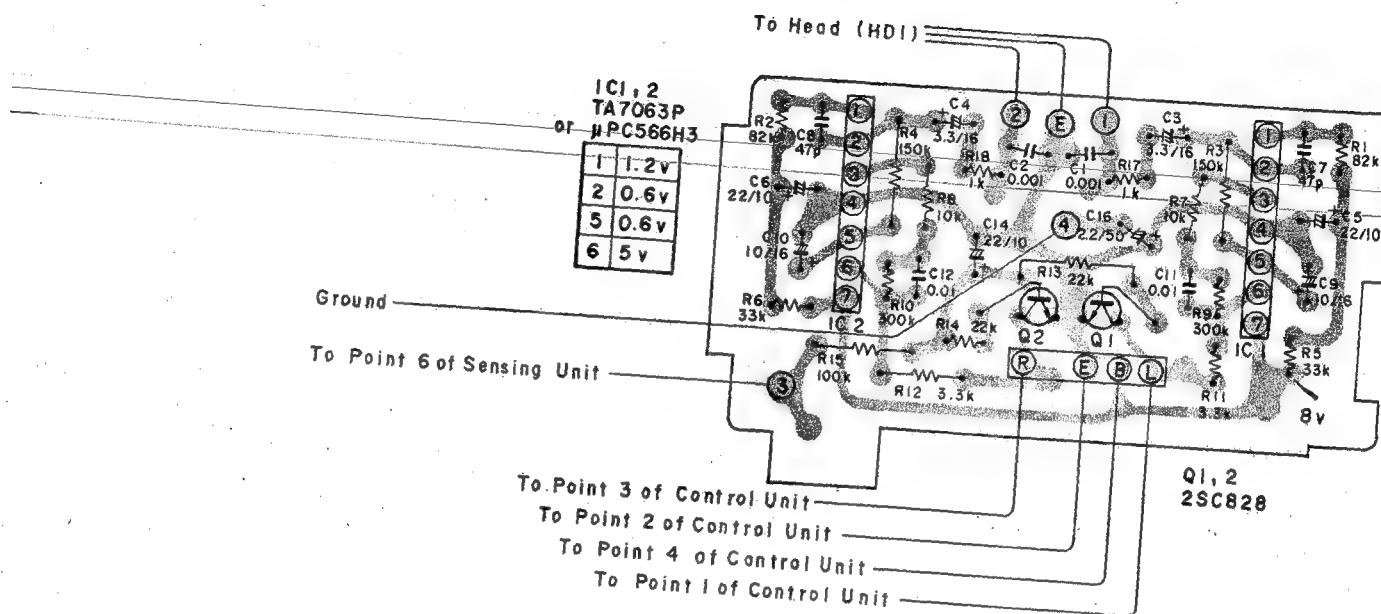


Fig. 7

• Parts List

MISCELLANEOUS

Ref. Key	Parts No.	Description
IC1	TA7063P-C,D,E or μPC566H3-N,M,L	IC
IC2	TA7063P-C,D,E or μPC566H3-N,M,L	IC
Q1	2SC828-Q,R	Transistor

Ref. Key	Parts No.	Description
Q2	2SC828-Q,R	Transistor

SI-C9008

added $C: 47\mu F$ 10V (CE1470 M10L)
 $R: 33k\Omega$ (RD14V53337)

SI-C8036

Q, Q2: -> 2SC1740 LN 82
 2SC7327M - GR

RESISTORS

Ref. Key	Parts No.	Description		
R1	RD1/4VS823J	Resistor	82kΩ	1/4W
R2	RD1/4VS823J	Resistor	82kΩ	1/4W
R3	RD1/4VS154J	Resistor	150kΩ	1/4W
R4	RD1/4VS154J	Resistor	150kΩ	1/4W
R5	RD1/4VS333J	Resistor	33kΩ	1/4W
R6	RD1/4VS333J	Resistor	33kΩ	1/4W
R7	RD1/4VS103J	Resistor	10kΩ	1/4W
R8	RD1/4VS103J	Resistor	10kΩ	1/4W
R9	RD1/4VS304J	Resistor	300kΩ	1/4W
R10	RD1/4VS304J	Resistor	300kΩ	1/4W

Ref. Key	Parts No.	Description		
R11	RD1/4VS332J	Resistor	3.3kΩ	1/4W
R12	RD1/4VS332J	Resistor	3.3kΩ	1/4W
R13	RD1/4VS223J	Resistor	22kΩ	1/4W
R14	RD1/4VS223J	Resistor	22kΩ	1/4W
R15	RD1/4VS104J	Resistor	100kΩ	1/4W
R16	VACANT			
R17	RD1/4VS 102J	Resistor	1kΩ	1/4W
R18	RD1/4VS 102J	Resistor	1kΩ	1/4W

CAPACITORS

Ref. Key	Parts No.	Description		
C1	CQMA102K50	Capacitor	0.001μF	50V
C2	CQMA102K50	Capacitor	0.001μF	50V
C3	CSZA3R3M16	Capacitor	3.3μF	16V
C4	CSZA3R3M16	Capacitor	3.3μF	16V
C5	CEA220P10	Capacitor	22μF	10V
C6	CEA220P10	Capacitor	22μF	10V
C7	CCDSL470K50	Capacitor	47pF	50V
C8	CCDSL470K50	Capacitor	47pF	50V
C9	CEA100P16	Capacitor	10μF	16V
C10	CEA100P16	Capacitor	10μF	16V

Ref. Key	Parts No.	Description		
C11	CQMA103K50	Capacitor	0.01μF	50V
C12	CQMA103K50	Capacitor	0.01μF	50V
C13	VACANT			
C14	CSZA220M10	Capacitor	22μF	10V
C15	VACANT			
C16	CEA2R2P50	Capacitor	2.2μF	50V

7. SENSING UNIT (CWK-172)

- **Parts Connection**

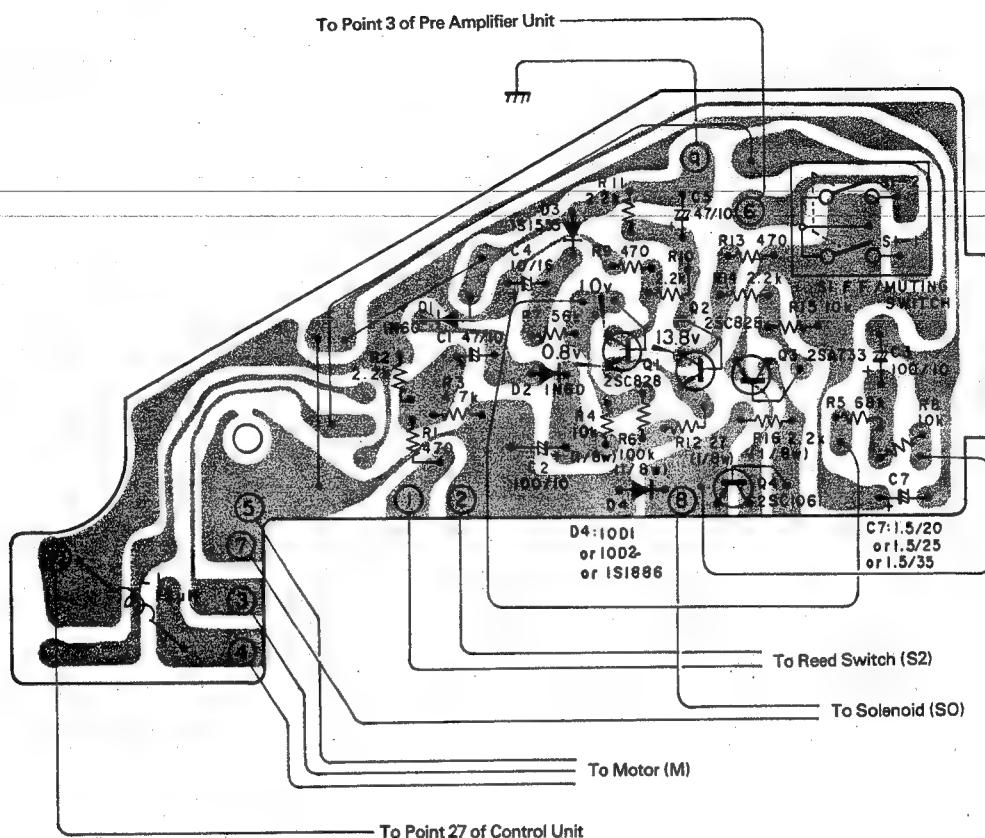


Fig. 8

- **Parts List**

MISCELLANEOUS

Ref. Key	Parts No.	Description
Q1	2SC828-R,S	Transistor
Q2	2SC828-R,S	Transistor
Q3	2SA733-Q,P,K	Transistor
Q4	2SC1061-B,C,D	Transistor
D1	1N60	Diode
D2	1N60	Diode
D3	1S1555	Diode
D4	10D1 or 10D2 or 1S1886	Diode

Ref. Key	Parts No.	Description
S1	CSN-047	Switch
L1	T63-618	Coil, 15 μ H

SENSING UNIT (CWK-172)

KP-66G

RESISTORS

Ref. Key	Parts No.	Description		
R1	RD1/4VS471J	Resistor	470Ω	1/4W
R2	RD1/4VS222J	Resistor	2.2kΩ	1/4W
R3	RD1/4VS472J	Resistor	4.7kΩ	1/4W
R4	CCN-023	Resistor	10kΩ	1/8W
R5	RD1/4VS683J	Resistor	68kΩ	1/4W
R6	RD1/8PS104J	Resistor	100kΩ	1/8W
R7	RD1/4VS563J	Resistor	56kΩ	1/4W
R8	RD1/4VS103J	Resistor	10kΩ	1/4W
R9	RD1/4VS471J	Resistor	470Ω	1/4W
R10	RD1/4VS222J	Resistor	2.2kΩ	1/4W

Ref. Key	Parts No.	Description		
R11	RD1/4VS222J	Resistor	2.2kΩ	1/4W
R12	CCN-022	Resistor	27Ω	1/8W
R13	RD1/4VS471J	Resistor	470Ω	1/4W
R14	RD1/4VS222J	Resistor	2.2kΩ	1/4W
R15	RD1/4VS103J	Resistor	10kΩ	1/4W
R16	CCN-021	Resistor	2.2kΩ	1/8W

CAPACITORS

Ref. Key	Parts No.	Description		
C1	CEA470P10	Capacitor	47μF	10V
C2	CEA101P10	Capacitor	100μF	10V
C3	CEA101P10	Capacitor	100μF	10V
C4	CEA100P16	Capacitor	10μF	16V
C5	CEA470P10	Capacitor	47μF	10V

Ref. Key	Parts No.	Description		
C6	VACANT			
C7	CSZA1R5K20 or CSZA1R5K25 or CSZA1R5K35	Capacitor	1.5μF	20V
		Capacitor	1.5μF	25V
		Capacitor	1.5μF	35V

8. MISCELLANEOUS PARTS LIST

Ref. Key	Parts No.	Description		
M	CXM-049	Motor		
SO	CXP-021	Solenoid		
HD1	CPB-015	Head		
S1	CSL-015	Switch		
S2	CSN-043	Switch		
IL1	CEL-063	Lamp, 14V 60mA		
J1	CDE-431	Connector		
VR1	CCS-159	Volume, 20kΩ (B)		
VR2	CCS-157	Volume, 50kΩ (M, N)		
VR3	CCS-156	Volume, 20kΩ (A)		

Ref. Key	Parts No.	Description		
VR4	CCS-156	Volume, 20kΩ (A)		
C1	CEA471P16	Capacitor 470μF 16V		

9. NOMENCLATURE OF SCREWS, WASHERS AND NUTS

The following symbols stand for screws, washers and nuts as shown in exploded view.

Symbol	Description	Shape
RT	Brazier head tapping screw	
PT	Pan head tapping screw	
BT	Binding head tapping screw	
CT	Countersunk head tapping screw	
TT	Truss head tapping screw	
OCT	Oval countersunk head tapping screw	
PM	Pan head machine screw	
CM	Countersunk head machine screw	
OCM	Oval countersunk head machine screw	
TM	Truss head machine screw	
BM	Binding head machine screw	
PSA	Pan head screw with spring lock washer	
PSB	Pan head screw with spring lock washer and flat washer	
PSF	Pan head screw with flat washer	

Symbol	Description	Shape
EW	E type washer	 
FW	Flat washer	 
SW	Spring lock washer	 
N	Nut	 
WN	Washer faced nut	 
ITW	Internal toothed lock washer	 
OTW	External toothed lock washer	 
SC	Slotted set screw (Cone point)	 
SF	Slotted set screw (Flat point)	 
HS	Hexagon socket headless set screw	 
OCW	Oval countersunk head wood screw	 
CW	Countersunk head wood screw	
RW	Round head wood screw	

EXAMPLE

PM 3x8

length in mm (l)

diameter in mm (d)

Symbol



FW 9φ x 1t

thickness in mm (t)

diameter in mm (d)

Symbol



10. CHASSIS EXPLODED VIEW

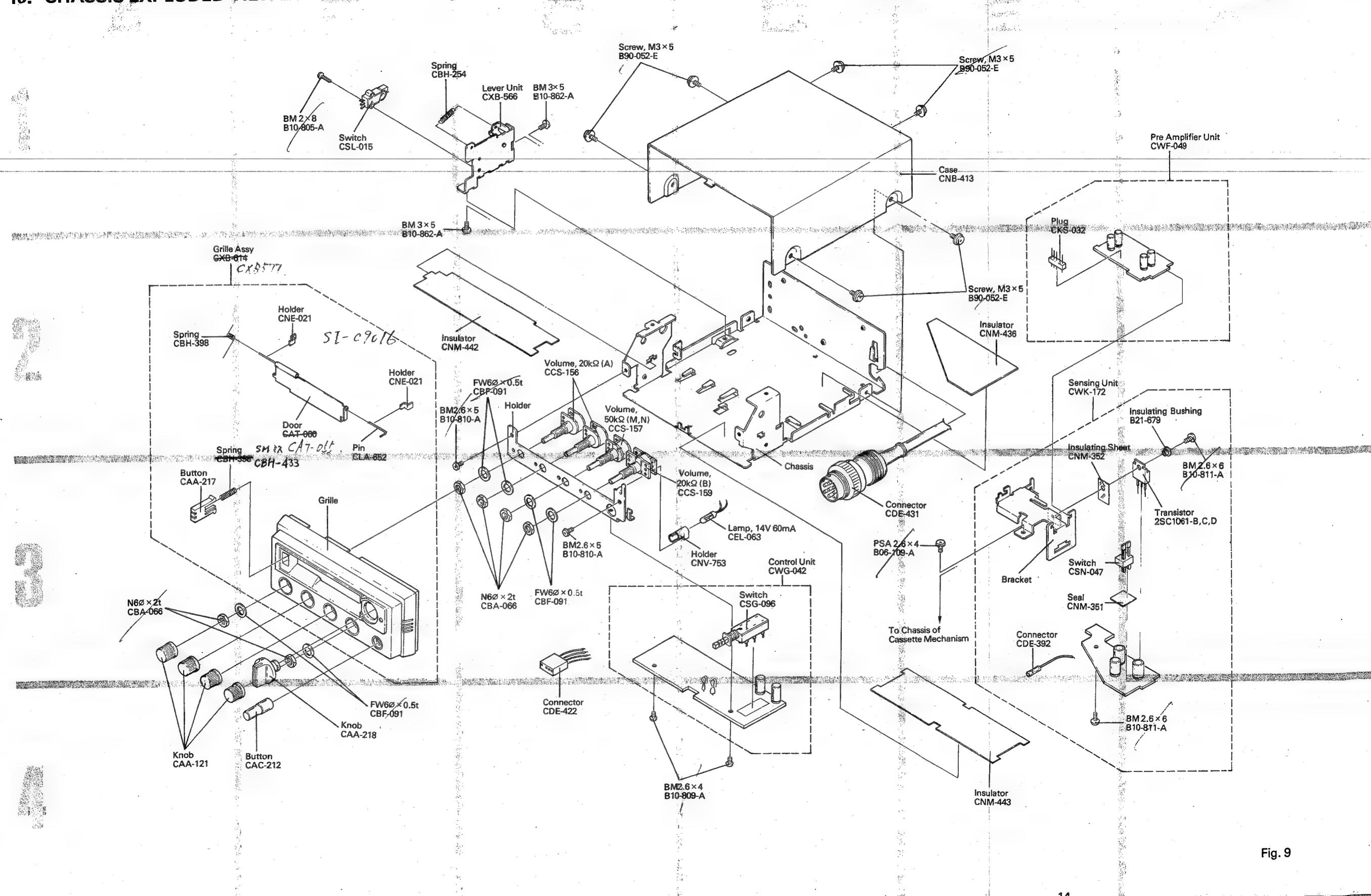


Fig. 9

11. PACKING METHOD

KP-66G

MEMO

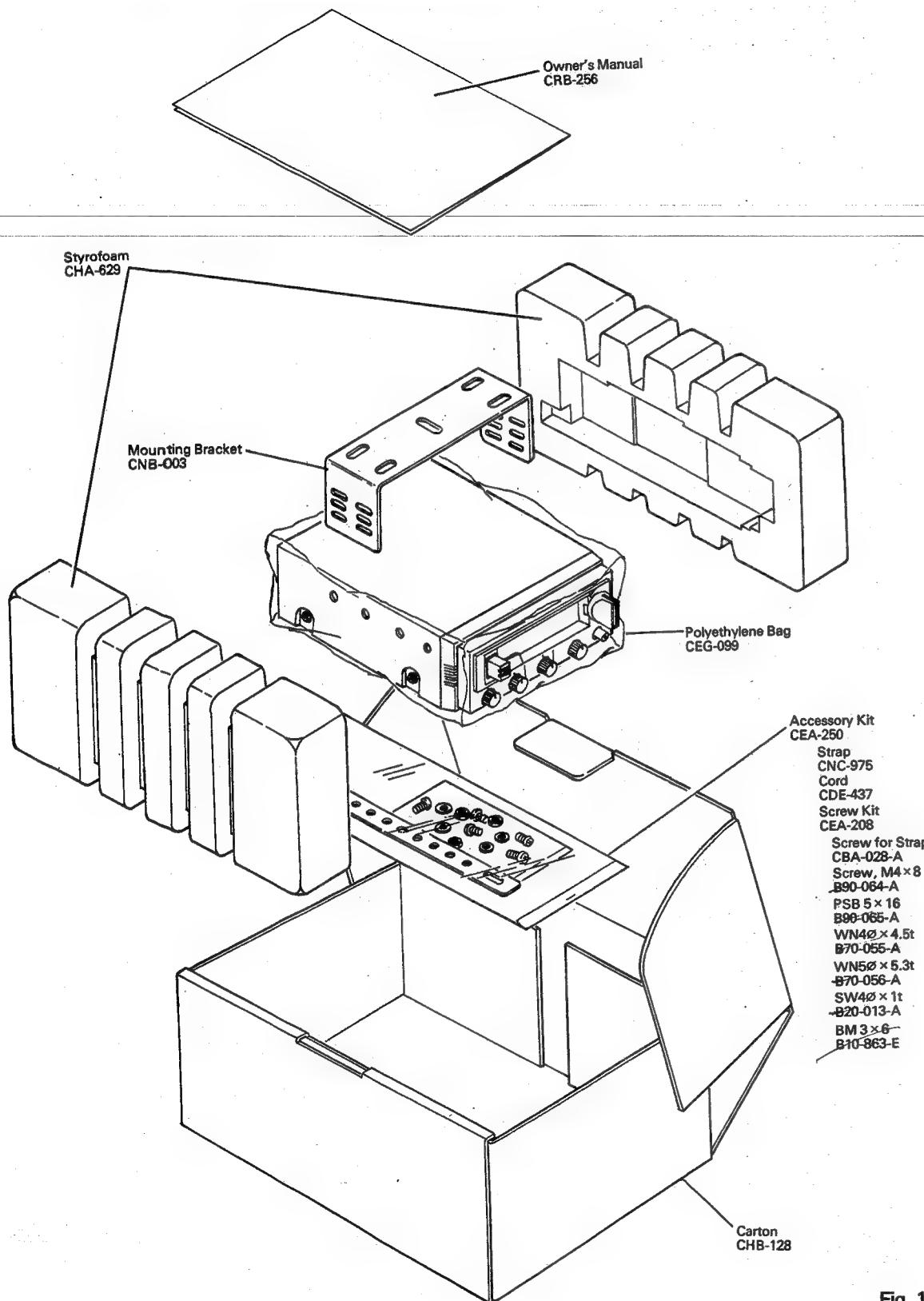


Fig. 10

CASSETTE MECHANISM INFORMATION

1. MECHANISM DESCRIPTION

• Cassette Loading

1. Cassette insertion causes Arm (1) to move in the arrowed direction (see Fig. 1).

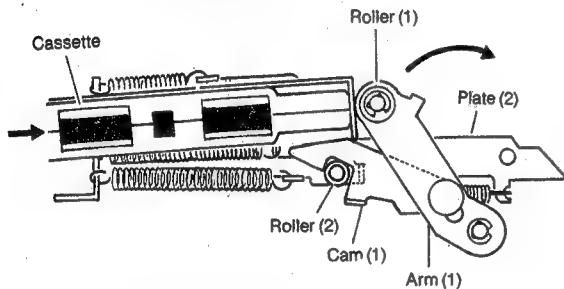


Fig. 1

2. Cam (1) draws Roller (2) to the right (see Fig. 2). With this, the fulcrum of Cam (1) causes the oval hole in Arm (1) to move downward.

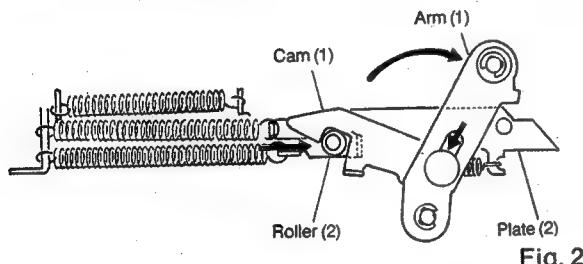


Fig. 2

3. Simultaneous with the movement of Roller (2), Plate (1) starts to move and pushes Plate (2) rightward (see Fig. 3).

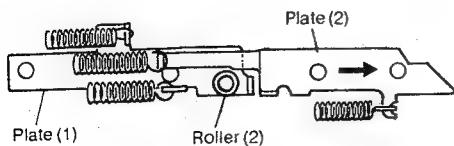


Fig. 3

4. Arm (2) is designed to cause vertical cassette movements. In eject position, Arm (2) locks Plate (2) at point A, and, by tension of Spring (2), is left at the position where Plate (2) comes to a stop (see Fig. 4).

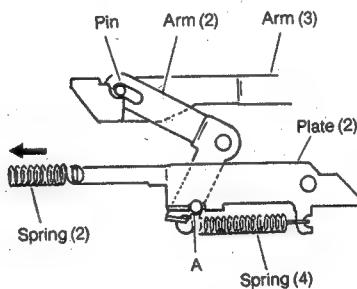


Fig. 4

5. With Plate (2), moving rightward, as mentioned in 1~3 above, Arm (2), through tension of Spring (4), acts to lower the cassette holder pin (see Fig. 5). However, this pin, which is supported by point B of Arm (3), is left stopped through its own inertia.

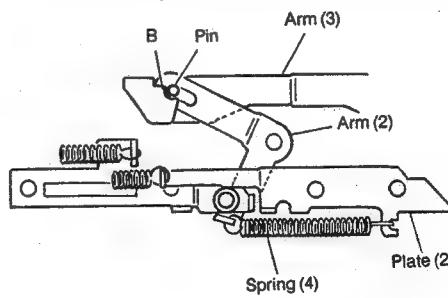


Fig. 5

MECHANISM DESCRIPTION

6. With Arm (1) pushed to the stroke limit, the notched part of Arm (3) locks Arm (1), with the result that, by the action of Spring (6), Arm (3) moves leftward a distance corresponding to the stroke in the oval hole at point C (see Fig. 6). The pin, then, now freed from support, as described in Item 5 descends and drops the cassette (see Fig. 7).

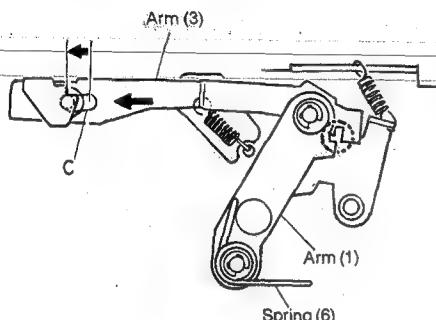


Fig. 6

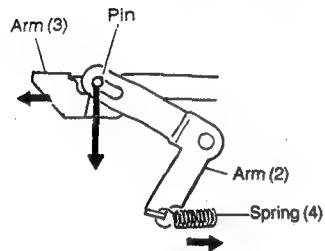


Fig. 7

• Head Base

1. The head base is kept engaged with Plate (3) through Arm (4). Plate (3) moves to the right and causes Arm (4) to rotate with point D as a fulcrum and, in turn, to cause the Head Base to move forward (see Fig. 8). However, it is necessary that the Head Base not move forward until the cassette drops into position.

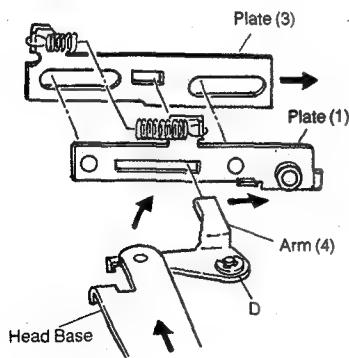


Fig. 8

2. For this purpose, Arm (5) is locked by Plate (3) until the cassette is positioned (see Fig. 9).

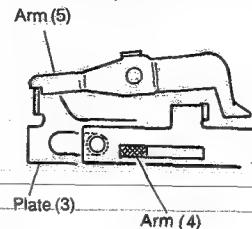


Fig. 9

3. The drop of the cassette causes the pin to push down the right end of Arm (5) and release the locking of Plate (3). Spring (1) then causes Plate (3) to move to the right and, in turn, move the Head Base forward (see Fig. 10).

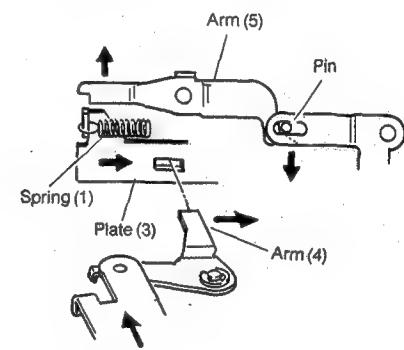


Fig. 10

• Eject Mechanism

1. Push Cam (2) to eject the cassette (see Fig. 11). Push Cam (2) in the arrowed direction to push up Cam (1) and disengage it from Roller (2). Plate (1) is pulled leftward through Spring (3).

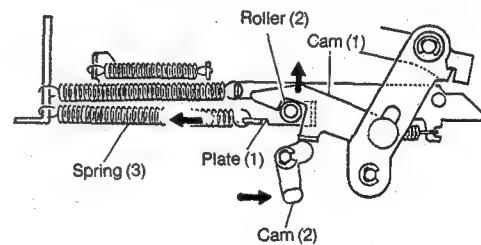


Fig. 11

MECHANISM DESCRIPTION

KP-66G

2. Plate (3), through Spring (1), moves together with Plate (1) to turn Arm (4) and to make the Head Base move backward (see Fig. 12).

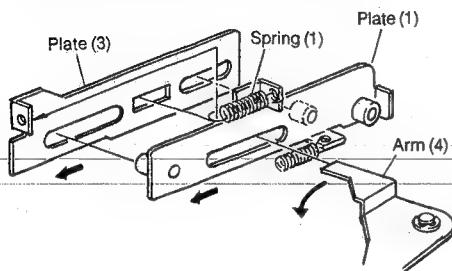


Fig. 12

3. With Plate (2) moving leftward, Arm (2) is pushed in the arrowed direction (Fig. 13) and lifts the pin, causing the cassette to rise.

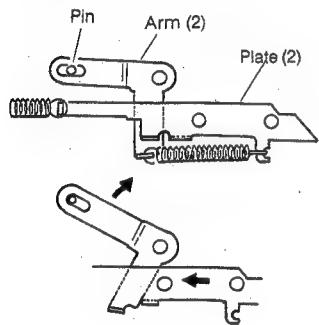


Fig. 13

4. Leftward movement of Plate (2) causes the pin calked by Plate (2) to push up Arm (7), so that the locking of Arm (3) with the notched part of Arm (1) is released (see Fig. 14).

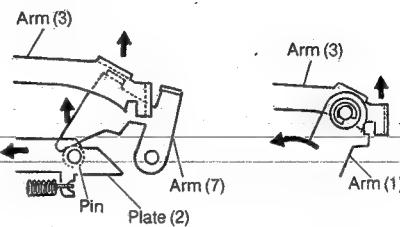


Fig. 14

5. With this, Arm (1), through Spring (6), starts to rotate in the arrowed direction and push out the cassette (see Fig. 15).

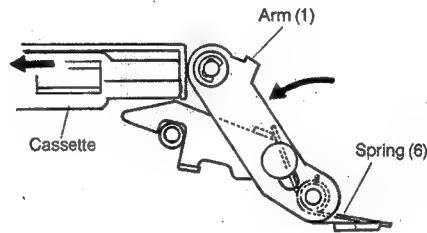


Fig. 15

MECHANISM DESCRIPTION

• F.F. Mechanism (see Fig. 16)

1. Turn the F.F./Rewind knob to F.F. to make Lever (1) move left and be locked by Roller (3). Lever (2) interlocked with Roller (3) is pulled together with Lever (3).
2. With Lever (3) pulled, Pin (1) interlocked with the eject cam is moved inward. With Pin (1) moving inward, the pushing of Lever (2) (directly connected with the eject button) will not cause cassette ejection, but instead release F.F. movement only.
3. Also, with Lever (1) moving left, Cam (1) moves in the arrowed direction and causes the Head Base to retreat and the Pinch Roller and Capstan Shaft to separate.
4. The movement of the Head Base causes Arm (1) to turn ON the F.F./Muting Switch to permit turning of motor at high speed.

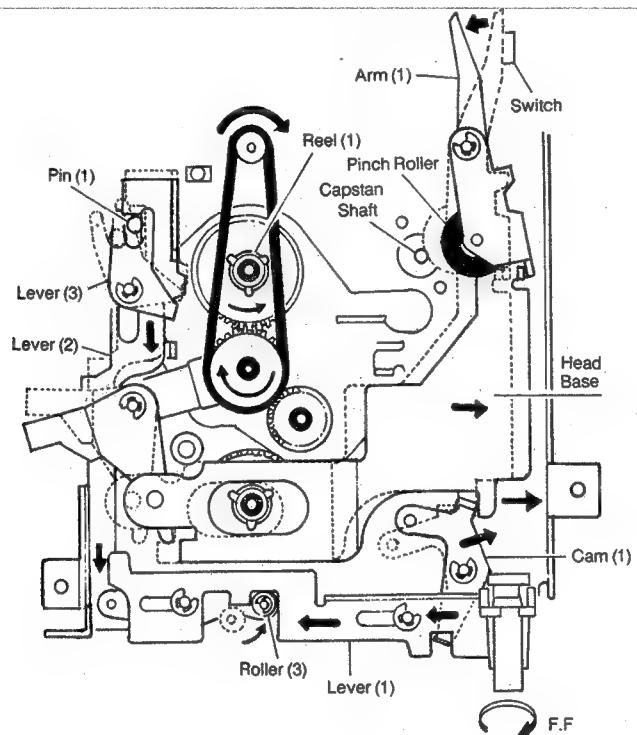


Fig. 16

• Rewind Mechanism (see Fig. 17)

1. Turning of the F.F./Rewind knob to the REW side causes Lever (1) to move rightward and be locked by Roller (3).
2. As in the function of the F.F. mechanism, Pin (1) moves inward.
3. With Lever (1) moving rightward, the Head Base is

retreated by the left end of Lever (1). Simultaneously, Cam (1) moves in the arrowed direction and pulls Lever (4).

4. With Lever (4) pulled, the linking gear moves toward Reel (2) and transmits motor rotation to Reel (2).

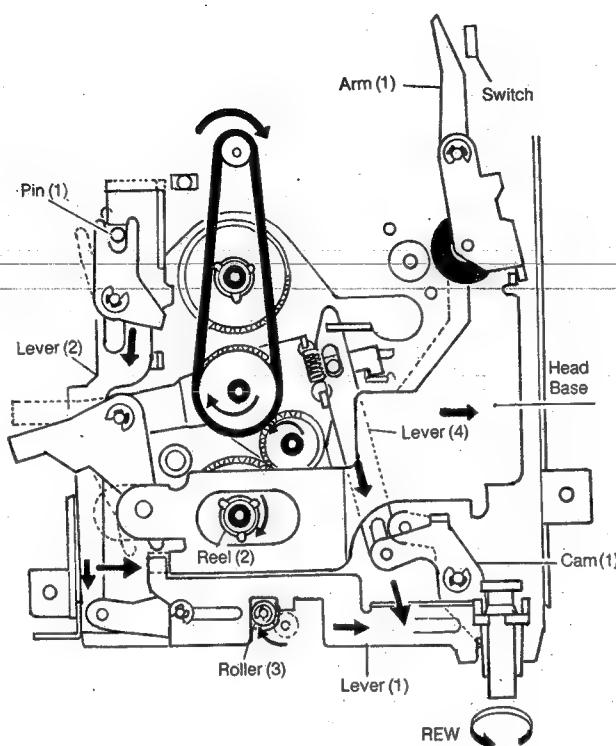


Fig. 17

2. ADJUSTMENT

2.1 AZIMUTH ADJUSTMENT

1. Connect VTVM and the speaker (4Ω) to the output lead in parallel. Connect the red lead to a DC regulated power supply and apply 13.8V.
2. Insert a 333Hz (STD-341) test tape. With balance set at medium and tone at maximum, turn volume for an output reading of 0dB.
3. Insert a 6.3kHz (STD-341) test tape.
4. Turn the azimuth adjusting screw so that outputs of Lch and Rch are each at maximum symmetrically (Fig. 18).

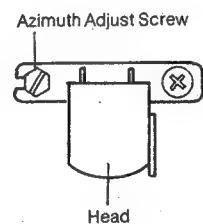
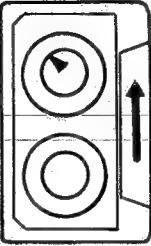
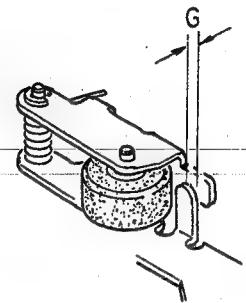
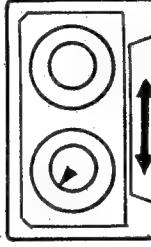
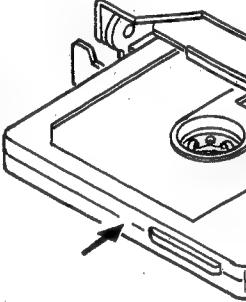
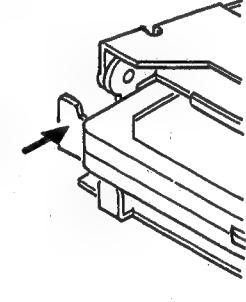
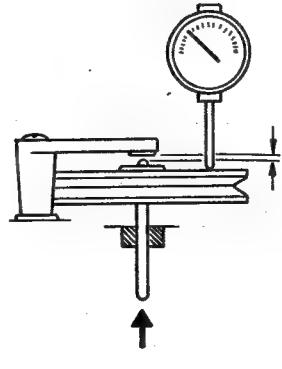
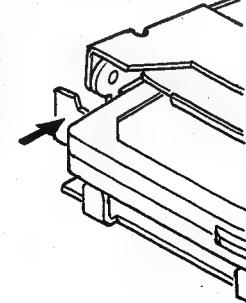


Fig. 18

ADJUSTMENT

2.3 CHECK POINTS OF CASSETTE MECHANISM

When replaced or repaired cassette mechanism parts, refer to values in the following table.

<p>(1) Wind torque Take measurement for 5~6 seconds using a cassette torque meter (120g/cm) to make sure torque is 55~75g/cm.</p> 	<p>(5) Clearance between pinch roller and head base stopper Determine using a thickness gauge that clearance is 0.5 ± 0.2 mm, when in play mode.</p> 
<p>(2) F.F. and rewind torque Take measurement for 5~6 seconds using a cassette torque meter (120g/cm) to make sure torque is 65g/cm or more.</p> 	<p>(6) Cassette loading force Using tension gauge (3 kg) at the center of the cassette, check to make sure the indication is less than 2.3 kg.</p> 
<p>(3) Pinch roller press adhesion force Measure using a tension gauge (500g) to make sure the load is 200~300g with the pinch roller starting to rotate in contact with the capstan shaft.</p> 	<p>(7) F.F. and rewind releasing force Using a tension gauge (1 kg) in the arrowed direction, check to make sure the indication is less than 0.5 kg.</p> 
<p>(4) Clearance between flywheel and flywheel bracket Set a dial pick gauge as shown in the figure, and check to make sure the difference is between 0.1 mm and 0.5 mm, when the flywheel is applied with pressure in the arrowed direction.</p> 	<p>(8) Eject force Using tension gauge (3 kg) in the arrowed direction, check to make sure the indication is less than 1 kg.</p> 

3. CASSETTE MECHANISM EXPLODED VIEW

NOTICE: Part whose parts number is omitted is subject to being not supplied.

KP-66G

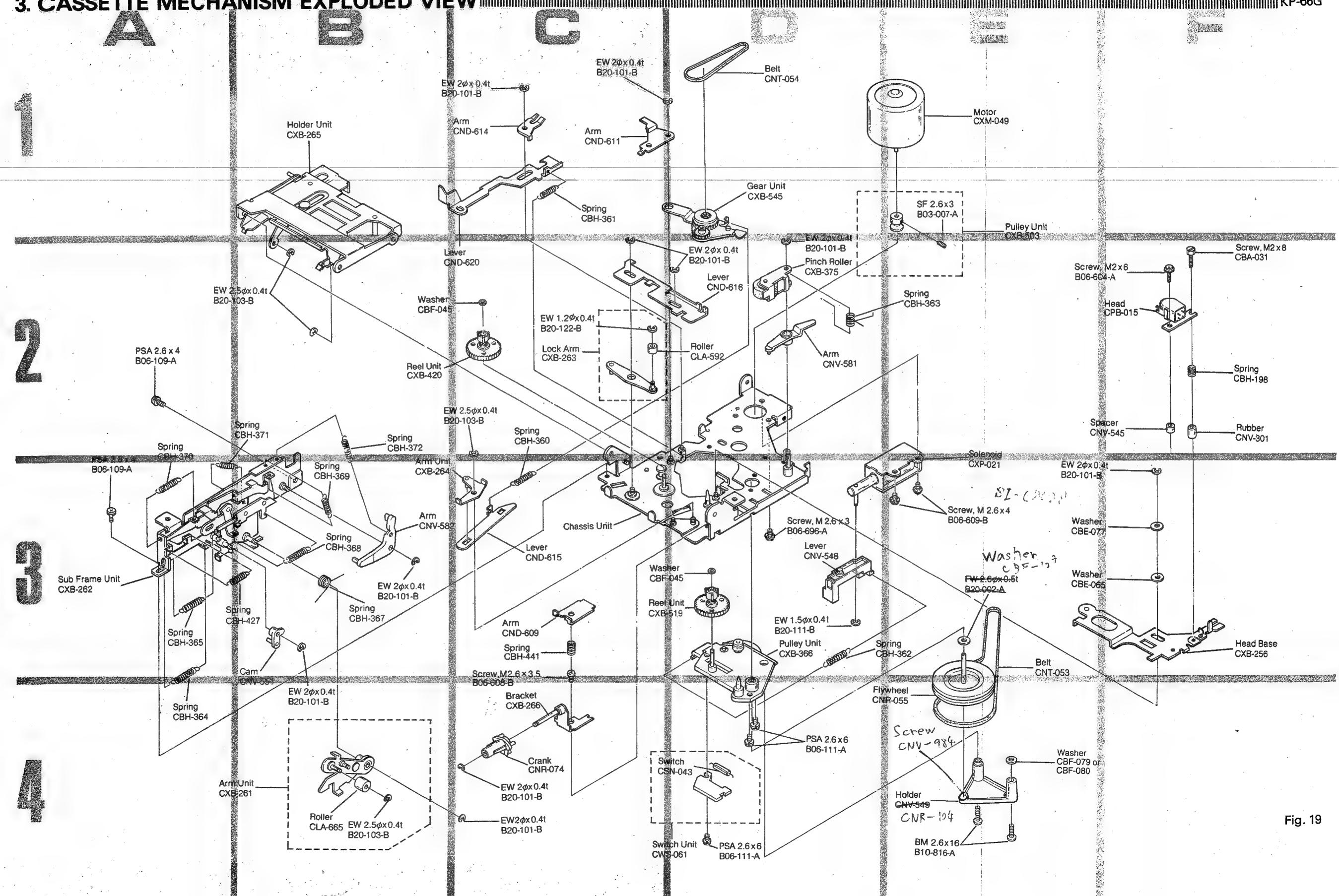


Fig. 19

SG1

PIONEER ELECTRONIC CORPORATION

4-1, Meguro 1 chome, Meguro-ku, TOKYO, 153, JAPAN

PIONEER ELECTRONICS OF AMERICA

1925 E. Dominguez St. Long Beach, Calif. 90810

PIONEER ELECTRONIC (EUROPE) N.V.

Luitlagen-Haven 9, 2030 Antwerp, Belgium

PIONEER ELECTRONICS AUSTRALIA PTY. LTD.

178-184 Boundary Road, Braeside, Victoria 3195, Australia

<CRT-116-0>

Printed in Japan

<77I01E61T>

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SERVICE INFORMATION

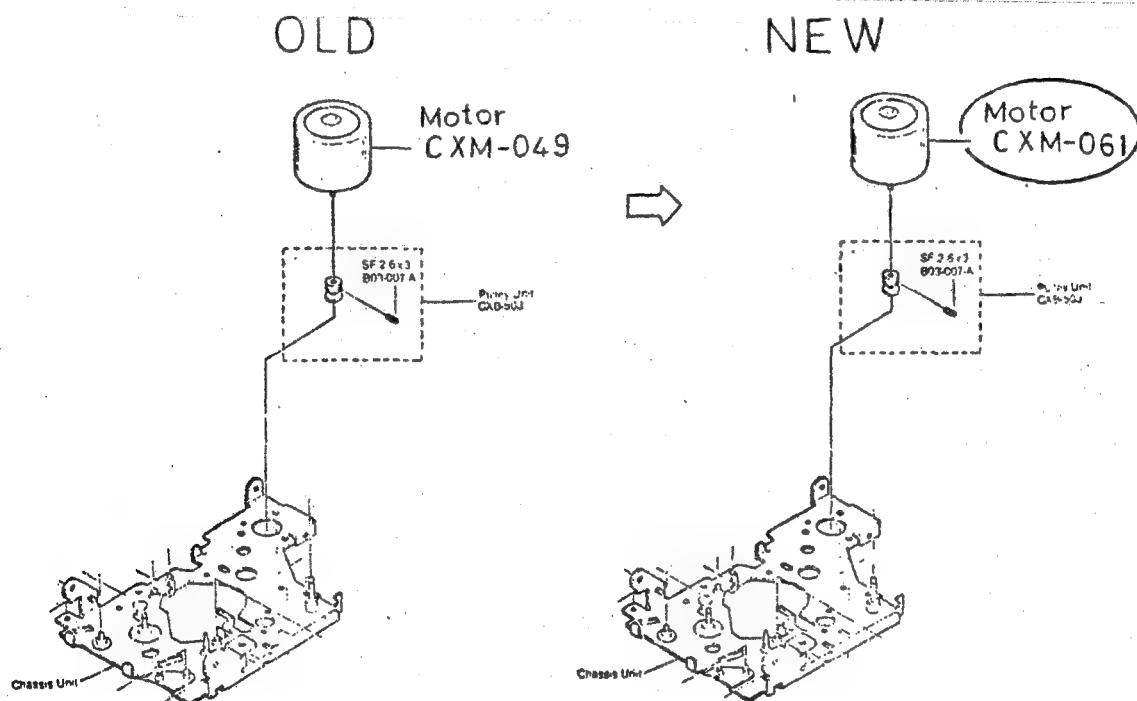
No. SI-C34034

MODEL: KP-88G, KP-66G, KPH-636/E, KPH-838/E, KPX-9000, KPX-600, KPX-9500

SUBJECT: Change of Motor for Cassette Mechanism Unit.

(an electronic sensing operation → an Mechanism sensing operation)

REASON: Convenience on procurement.



NOTICE: 1. Old (CXM-049) and New (CXM-061) Motors are not interchangeable, because operation of Motor is different. But New Motor (CXM-061) can be used for unmodified Model.
2. If you use old motor for Modified Model, Motor does not work.
3. We will supply only New Motor (CXM-061) from now on.

APPLICABLE SERIAL No. :

KP-88G/U	48501~	KPH-636/E	2101~	KPX-600/U	43201~
KP-88G/C	48501~	KPH-838/E	2501~	KPX-600/C	43201~
KP-88G/E	50001~	KPX-9000/U	94001~	KPX-9500/U	1~
KP-66G/U	28001~	KPX-9000/C	94001~	KPX-9500/C	1~
KP-66G/C	28001~	KPX-9000/UM	2401~		
KP-66G/E	24501~				

SERVICE INFORMATION

No. SI-C34031

MODEL: THE FOLLOWING CASSETTE MECHANISM MODELS.

SUBJECT: Cassette mechanism for Car Stereo.

Cassette mechanism listed below can be supplied as Service Parts.

Parts No.	Applicable Model
CXB-315	KP-8000/ZEP, ZE, G, GF, U, C KP-8300/ZEP, ZE KP-8001/ZEP KP-8005/G, GF, U, C KP-5300/ZEP KP-5005/G, GF, U, C KP-5000/ZE KP-6000/E KP-6300/E KP-6001/E KP-6002/E KP-6400/E KP-8005F/F KP-6011F/F
CXB-560	KPH-838/U, E KPH-636/E KP-88G/U, C, E KP-66G/U, C, E KPH-9000/U
CXB-720	KP-9300/E KP-9000/E KE-3000/U, C
CXB-770	KE-2000/U, C, E KE-2002/U KE-2300/E
CXB-760	KPH-9000/U KPX-9000/U, C, UM KPX-600/U, C

SERVICE INFORMATION

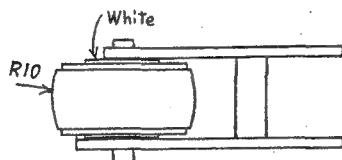
No. SI-C9009

MODEL: KP-66G, KP-88G, KP-292, KP-5000, KP-5005, KP-5300, KP-6000, KP-6001, KP-6002, KP-6011F, KP-6300, KP-6400, KP-8000, KP-8001, KP-8005, KP-8300, KP-9000, KP-9300, KPH-636, KPH-838, KPH-9000, KPX-600, KPX-9000, KE-2000, KE-2002, KE-2300

SUBJECT: Modification of the roller unit.

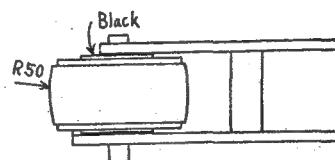
REASON: To improve wow and flutter.

CXB-375



(Fig. 1)

CXB-787



(Fig. 2)

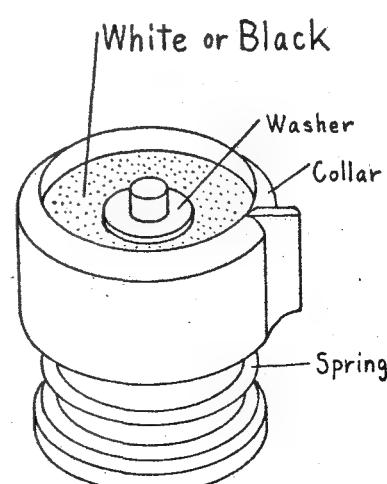
Interchangeability --- Referring to Fig. 3, see what color the head of the supplying Reel is.

- a) Interchangeable : The new Roller Unit, CXB-787, can be mounted on the models underlined above which have a black head.
- b) Uninterchangeable: The Supplying Reel shall be modified when mounting the new Roller on the units of old lots of the models NOT underlined above which have a white head.

Replacing the Roller Unit of (b)

When using CXB-787, supplying Reel requires back tension. Without the back tension, the tape will be chewed. Refer to Service Info., SI-C8007. Units having CXB-420 or CXB-246 require the following new parts. The Roller Assembly, CXX-072, will be shipped to the order of CXB-375.

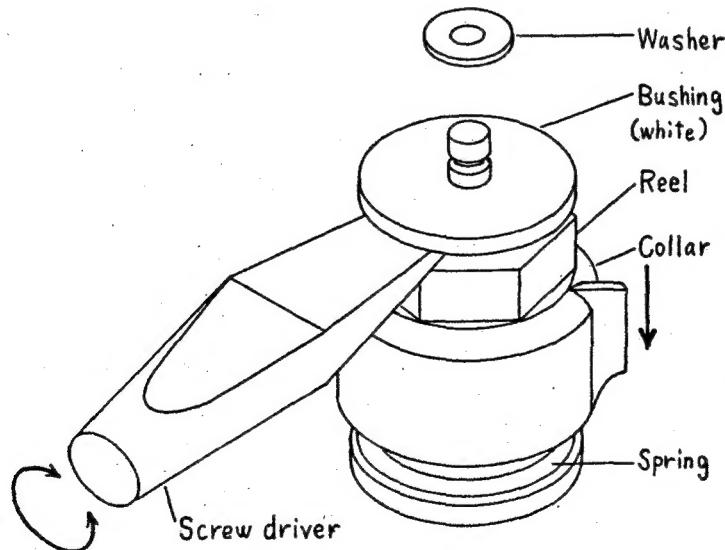
CXX-072 New Roller Assembly	CXB-787	Roller Unit	1 pce
	CBF-088	Washer	1 pce
	CNV-885	Bushing	1 pce
	CBH-471	Spring	1 pce



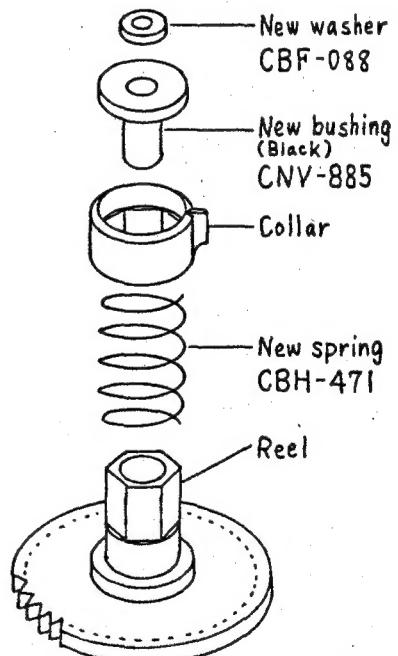
(Fig. 3)

Modifying Reel Unit:

1. Remove the Grill Unit.
2. Remove the Holder Unit.
3. Depress the Collar of the Reel Unit with a finger. (Fig. 4)
4. Remove the Washer, CBF-045, with a screw driver.
5. Remove the Bushing by inserting a screw driver (-) between the Bushing and the Reel and prying it. (Fig. 4)
6. Remove the Collar and Spring.
7. Remove the burrs on the Reel, if any, to get the smooth movement of the Collar and Bushing.
8. Put on the new Spring CBH-471, return the Collar, put on the new Bushing, CNV-885, and next, the new Washer CBF-088. (Fig. 5)
9. Return the Holder Unit. Do not forget the E-ring.



(Fig. 4)



(Fig. 5)

SERVICE INFORMATION

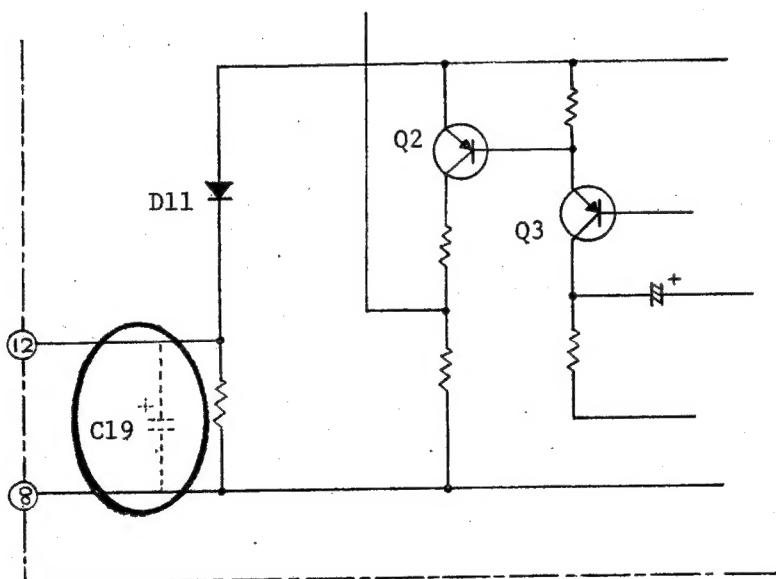
No. SI-C8018

MODEL: GM-40, KPH-9000, KPH-838, KPH-636

SUBJECT: Circuit modification of Amplifier Unit (CWH-059).

REASON: To prevent troubles at high line impedance of Power Supply (More than 1Ω).
(When using a thin core cord or connector has a poor contact point.)
• When GM-40 is combined with cassette deck, cassette tape may eject right after the cassette tape is inserted into the deck.
• Protection circuit is became improper operation at high power output.

C19 : 1000μF 16V CEA102P16 → Deleted



SERVICE MANUAL PAGE:

GM-40 [CRT-130] ----- 3

APPLICABLE SERIAL No.:

GM-40/E	11001~	KPH-9000/U, C	14001~
" /U	18001~	KPH-838/U, C	11001~
" /C	1001~	KPH-838/E } KPH-636/E }	First lot~

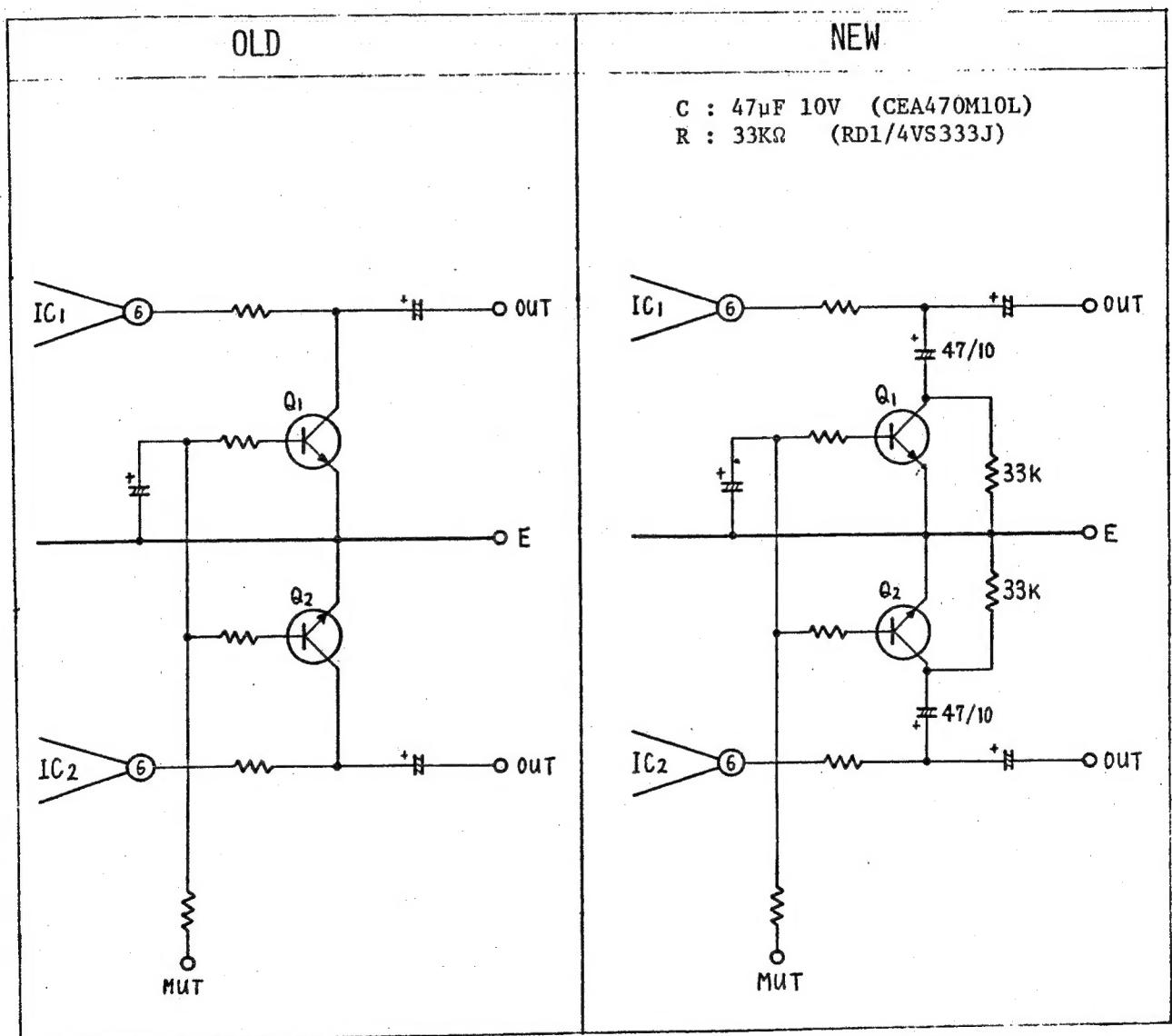
SERVICE INFORMATION

No. SI-C9008

MODEL: KP-66G, KP-88G, KPH-636, KPH-838, KPH-9000, KPX-600, KPX-9000

SUBJECT: Circuit modification of the pre amplifier unit.

REASON: To reduce the popping noise when muting circuit is on.



APPLICABLE MONTH: March 1979

SERVICE INFORMATION

No. SI-C8016

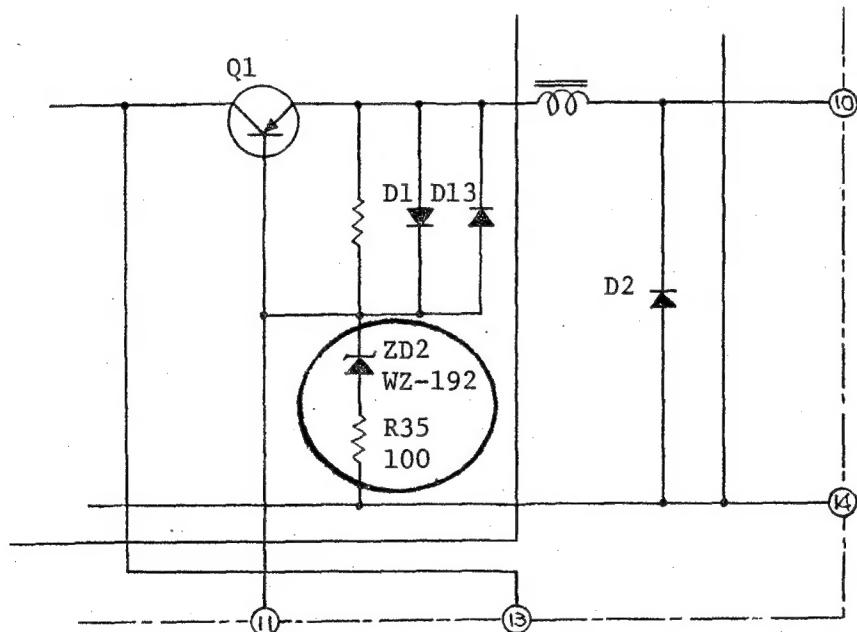
MODEL: GM-40, KPH-9000, KPH-838, (KPH-636)

SUBJECT: Circuit modification of Amplifier Unit (CWH-059).

REASON: To prevent breakdown of transistor Q1(2SB410P or 2SB411P) by counter electromotive force when chattering is generated switch of cassette deck.

ZD2 : Added → Zener diode
WZ-192

R35 : Added → 100Ω
RD1/4PS101J



SERVICE MANUAL PAGE:

GM-40 [CRT-130] ----- 3

APPLICABLE SERIAL No.:

GM-40/E	11001~
" /U	2801~
" /C	First lot~
KPH-9000/U, C	14001~
KPH-838/U, C	11001~
KPH-838/E }	First lot~
KPH-636/E	